Server Virtualization Quiz

How much do you really know about server virtualization? Take our quiz and find out. PAGE 28

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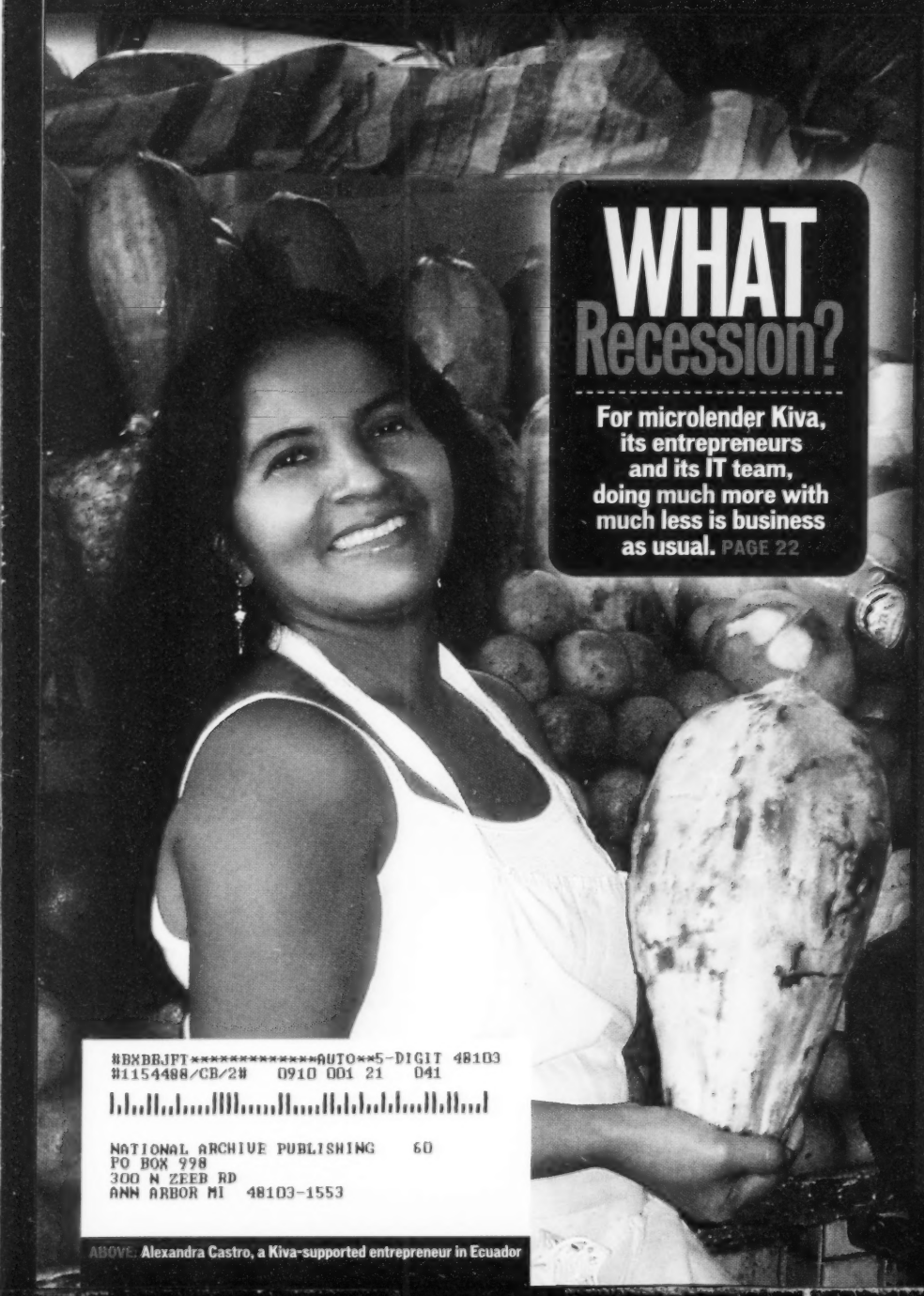

## WHAT Recession?

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ABOVE: Alexandra Castro, a Kiva-supported entrepreneur in Ecuador

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MARCH 9, 2009
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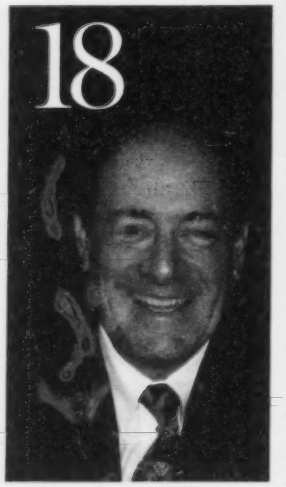
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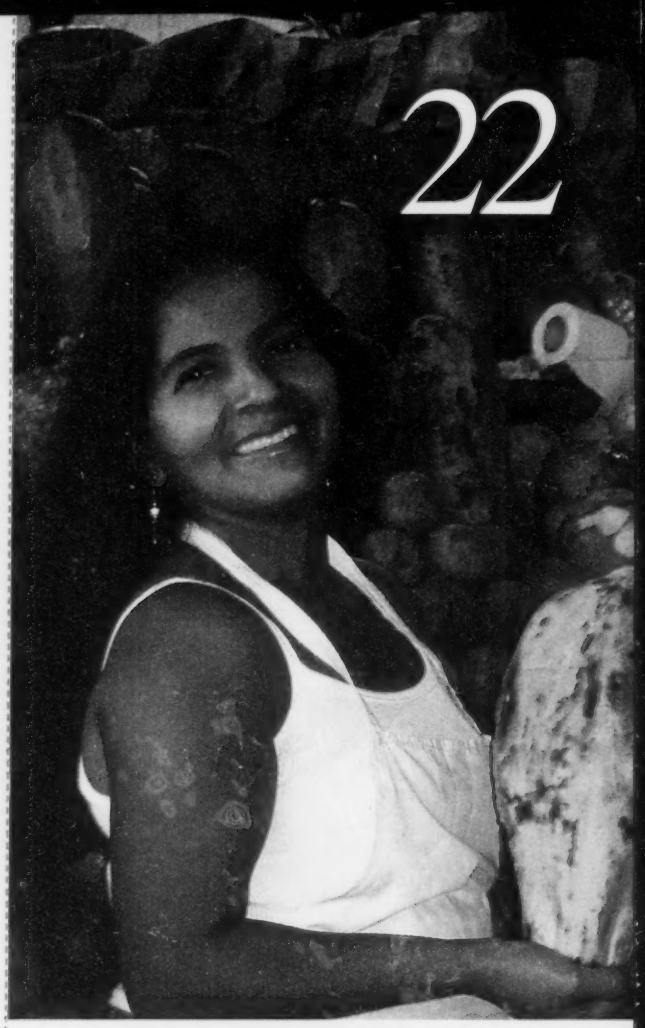
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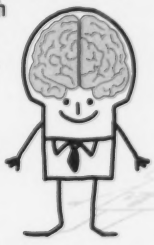

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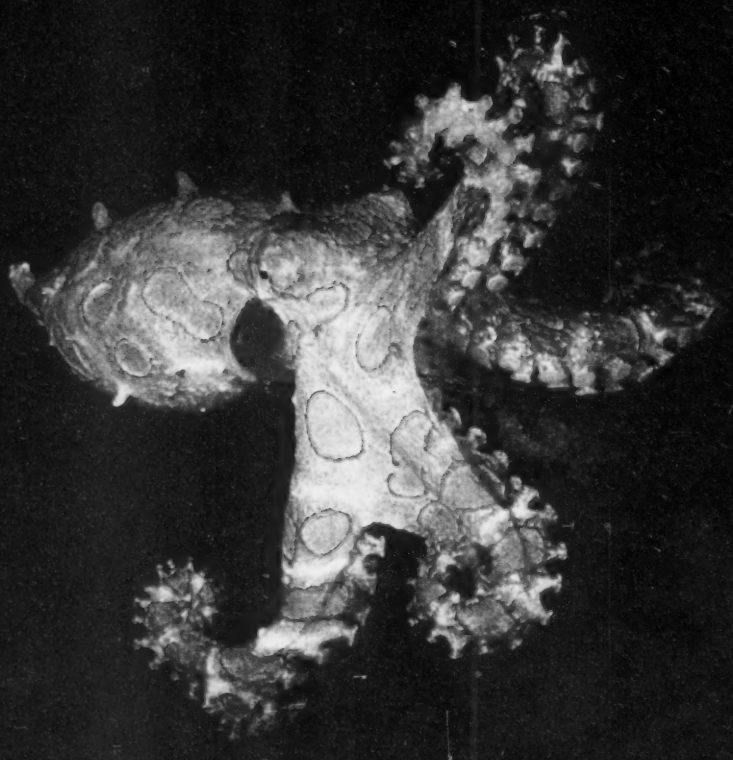

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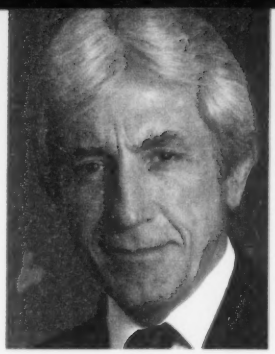
■ EDITOR'S NOTE

Don Tennant

# Questioning Why



THE MOOD at last week's *Computerworld* Premier 100 IT Leaders Conference in Orlando was decidedly upbeat. That's probably because it's difficult for even the most curmudgeonly among us to be downcast when surrounded by people who tend to be as caring as they are accomplished.

That's the sort of people we honor each year, and when you get the Premier 100 honorees and alumni together in one place, the vibe is nothing if not uplifting. That's not to say that anyone had on rose-colored glasses. The recession's crippling global impact was at the forefront of onstage presentations and hallway discussions alike, and the seriousness of the situation was lost on no one.

Yet there was a recognition that better times lie ahead. The recession will end, the economy will turn around, and the talented people who have lost their jobs will return to work. Preparing and positioning ourselves, our employees and our companies for that inevitability is the demanding task at hand, we hear.

It's a cycle. Simple as that. There have been downturns and recoveries in the past, and there will be downturns and recoveries in the future. That's just the way it works. It's how we've always done it.

Maybe that's the problem. "It's how we've always done it" is a laughable line in discussions about things like process management. If we've learned anything in the relentless quest to align what IT does with what the business needs, it's that doing things a certain way because that's the way they've always been done is just plain stupid. So why not apply the same stupidity metric to the economy?

There's a reason why the economy keeps collapsing every time we fix it. What is it? More to the point, why must it collapse in the first place? Why have we succumbed to the notion that economic performance is necessarily cyclical and that times of economic suffering are, in turn, unavoidable?

**■ Why have we succumbed to the notion that economic performance is necessarily cyclical and that economic suffering is unavoidable?**

One of the best things about a gathering like the Premier 100 conference is that you get glimpses of how things could be when someone dares to question the way things have always been. One of those glimpses came during a roundtable discussion on IT labor in which the subject of the graying of the workforce came up.

Several of the IT executives present mentioned their concern that a large percentage of their employees are nearing retirement, and the executives were at a loss to figure out how they were going to retain the institutional knowledge held by those employees. What do you do when your workers reach retirement age but the systems under their stewardship will long remain critical to the company's operations?

Bob Fecteau, CIO at BAE Systems Customer Solutions and a 2009 Premier 100 honoree, presented an idea that clearly intrigued many of his colleagues around the table. We've long had an institutionalized system that enables young people to enter the workforce as interns. Why don't we have an equally well-established system that enables older people to exit the workforce as *externs*? The aim would be to extend the employment of our workers in a way that accounts for their physical limitations and the company's compensation constraints.

"You come in young; you're paid little. As you get older, the salary starts to peak. We haven't figured out the regression side of that scale very well," Fecteau said. "When you get to the peak, is it a cliff, or is it a slope?" By adjusting work hours, responsibilities and salaries, more-seasoned workers can contribute longer to the company and to the economy.

Extern programs aren't the norm because we've never done it that way. Instead, we've thrown valuable knowledge and skills over the cliff. When we recognize how stupid that is and do something about it, we'll be one step closer to ending our acquiescence to the inevitability of economic suffering. ■

**Don Tennant** *is* Computerworld*'s senior editor-at-large. You can contact him at don_tennant@computerworld.com, and visit his blog at* http://blogs.computerworld.com/tennant.

## Generational Clashes Are Nothing New

The article "Clash of the Generations" in the Feb. 16 issue made me smile. I am a baby boomer, currently 51 years old. Thirty years ago, when I and the other boomers were the young bucks, the older generation of the day disliked our casual dress habits and what they perceived as our lack of professionalism. We wanted to try our new ideas. We wanted flexible work schedules. We lived and breathed our work. We hung out with coworkers: sports, vacations, trying new experiences.

Then, we married and raised children, and our priorities changed. We advanced in our careers and became responsible for other people on the job. We started taking fewer risks at work because we had more to lose. We depended upon our higher salaries to pay for mortgages and the things our families needed — and bigger and better vacations.

We are not seeing anything new today. What we are seeing is the rising generation asserting its will and the receding generation resisting change. It's just different groups of people in different phases of their lives. In 30 years, millennials will sound much like the boomers of today describing the new rising generation.

■ **Michael Gillson,** *programmer/analyst, Chugach Electric Association Inc., Anchorage, Alaska, michael_gillson@chugachelectric.com*

## IT Doesn't Always Have A Seat at the Table

The key statement in Don Tennant's Feb. 23 Editor's Note, "Alleviating Panic," is, I would say, his quote from Sunoco's CIO, Peter Whatnell: "The CIO is first and foremost a member of the management team." 'Tain't necessarily so. Or perhaps I should say, the senior person in the IT area does not always have the CIO title and is not always a member of the management team. This doesn't mean I have to panic, but it does make doing the job more difficult.

■ **Dan Poor,** *registrar and director of technology, Meriden, N.H.*

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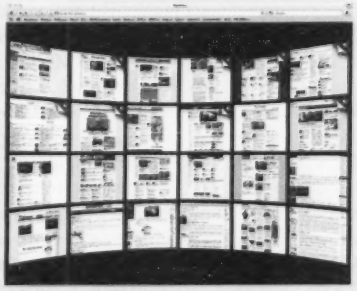

### Safari 4 Beta: Innovative, Fast, Fun

**REVIEW: Apple's new browser will wow users, thanks to useful new features, slick interface tweaks, speedy page-rendering and smart development decisions that were based on how people actually surf the Web.**


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# News Digest

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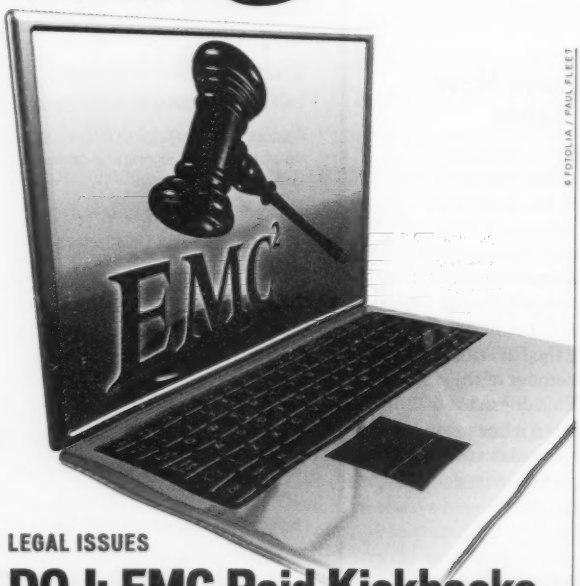
## THE WEEK AHEAD

**MONDAY:** The Global Women's Technology Collaborative, a group looking to get more girls and women involved in technology, is due to hold a kickoff meeting at the United Nations.

**TUESDAY:** The IEEE plans to mark its 125th anniversary with a webcast featuring a panel discussion on human-technology interaction in areas such as biometrics and robotics.

**WEDNESDAY:** *Computerworld* and sister publication *InfoWorld* jointly host a virtual conference on enterprise architecture.

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LEGAL ISSUES

## DOJ: EMC Paid Kickbacks, Overcharged U.S. Agencies

THE U.S. Department of Justice last week disclosed that it has intervened in a 2006 lawsuit charging that EMC Corp. gave kickbacks to federal IT consultants and overcharged government agencies for hardware, software and services.

Hopkinton, Mass.-based EMC had acknowledged in its 2008 10-K filing with the U.S. Securities and Exchange Commission that the DOJ was investigating the kickback and overcharging allegations, but it quickly denied any wrongdoing.

"We did not make improper payments to business partners, and we did not engage in inaccurate pricing practices," said EMC spokesman Patrick Cooley.

The lawsuit was filed in 2006 in federal court in Little Rock, Ark., by former Accenture Ltd. employees Norman Rille and Neal Roberts under the whistle-blower provisions of the federal False Claims Act.

Rille and Roberts charged that EMC had been submitting false claims to federal agencies for products and services since the late 1990s.

In a statement issued last week, the DOJ said that "the core of the allegations ... is that EMC made payments of money and other things of value (alliance benefits) to a number of systems integration consultants and other alliance partners with whom it had alliance relationships."

It added that the "benefits paid by EMC amount to kickbacks and undisclosed conflict-of-interest relationships."

The DOJ also alleges that EMC effectively overcharged federal agencies by making false statements to the General Services Administration about its commercial pricing practices. DOJ officials declined to comment further on why the department joined the lawsuit.

"The matters at issue in this case are historical in nature; some of the allegations relate to events nearly 10 years old," Cooley said in an e-mail. "We will vigorously defend this case and the many years EMC has spent serving the U.S. government."

EMC said in its 10-K filing that it faces various possible sanctions, including "fines, penalties and other sanctions, including suspension or debarment from sales to the federal government."

The DOJ in 2007 intervened in similar federal whistle-blower lawsuits filed by Rille and Roberts against Hewlett-Packard, Sun Microsystems and Accenture.

— *Lucas Mearian*

SECURITY

## Excel Bug Will Be Ignored on Patch Tuesday

Microsoft Corp. last week said that three Windows security updates, including one rated "critical," will be released tomorrow.

The company acknowledged, however, that it will not deliver a fix for an Excel flaw that attackers are now exploiting.

Microsoft didn't disclose details of the patches, other than to say which versions of Windows will be affected.

"It's pretty nebulous," said Andrew Storms, director of security operations at nCircle Network Security Inc. "They could be any number of things."

> **"It's pretty nebulous. [The flaws patched] could be any number of things.**
> **ANDREW STORMS, nCIRCLE**

The critical update will affect all still-supported editions of the operating system, including Windows 2000, XP, Server 2003, Vista and Server 2008. Unpatched "critical" bugs allow PCs to be hijacked by hackers without any action by users. The other updates, labeled "important," fix so-called spoofing bugs, which typically are used to trick users into divulging confidential information.

– GREGG KEIZER

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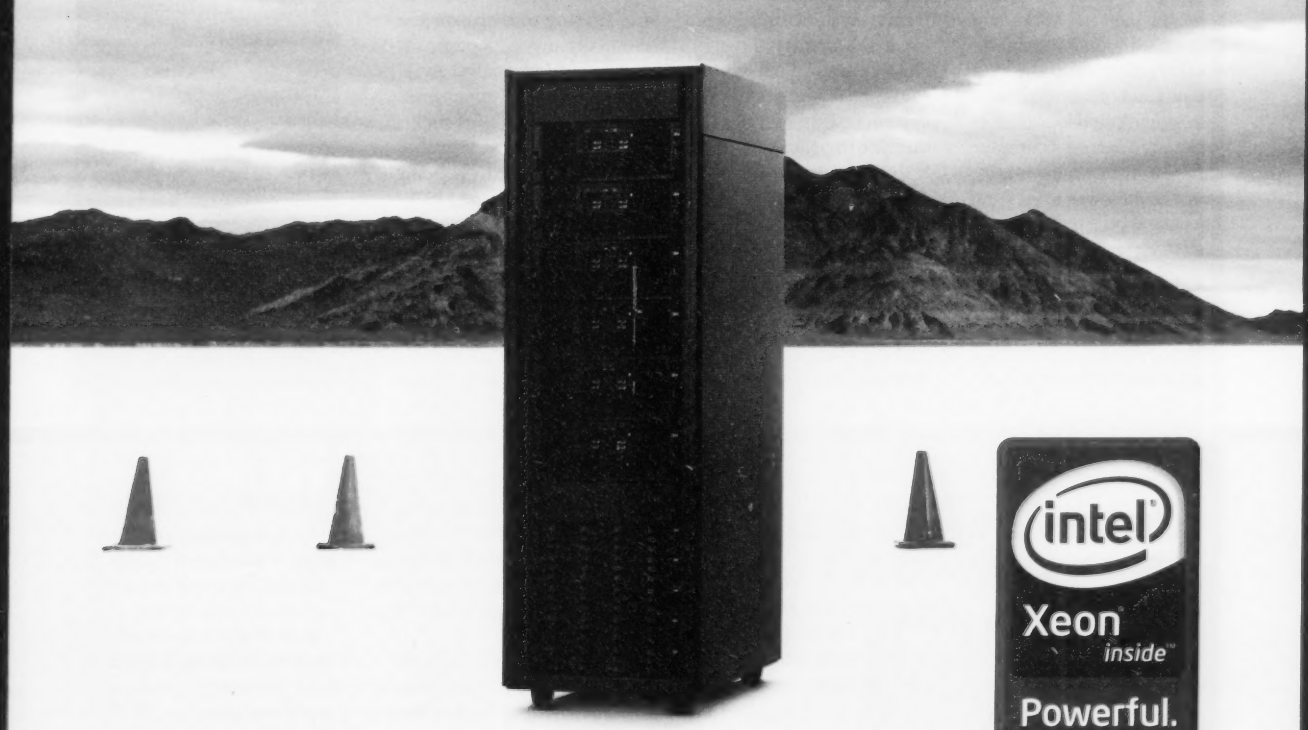

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MATE 2ND CLASS DANIEL J. MCLAIN

Classified information about Marine One's onboard systems was found in a shared folder on a computer located in Iran.

SECURITY

# Data About Presidential Helicopter Leaked via P2P

A COMPANY THAT monitors peer-to-peer networks said it found classified information about the systems used onboard the U.S. president's helicopter in a shared folder on a computer in Iran, after a file containing the data was accidentally leaked on a peer-to-peer network last summer.

The file appears to have come from a computer belonging to a Bethesda, Md.-based military contractor, according to Tiversa Inc., which said it discovered the classified material on the Iranian system on Feb. 26.

Chris Gormley, Tiversa's chief operating officer, said the IP address of the system in Iran belongs to an "information concentrator" — someone who searches P2P networks for sensitive data.

According to Gormley, Tiversa first found the data about Marine One's communications, navigation and flight management systems on file-sharing networks last summer. The company notified the defense contractor and law enforcement authorities back then, he said. But, he added, the finding in Iran shows that the information is still available online.

There are numerous other examples of sensitive data leaking onto P2P networks. In 2007, for instance, security researchers told federal lawmakers that they had found millions of classified documents, including a diagram of the Pentagon's secret backbone network infrastructure, complete with IP addresses and password-change scripts.

That same year, the personal data of 17,000 workers at Pfizer Inc. was exposed after an employee installed file-sharing software on a company-owned laptop.

Gartner Inc. analyst Avivah Litan said IT managers should take measures such as encrypting files, preventing P2P software from being installed on PCs and blocking P2P traffic at network gateways. The availability of the Marine One data "drives home the point," Litan said, "that companies cannot forget about P2P."

— *Jaikumar Vijayan*

## Short Takes

Mozilla Corp. patched eight security vulnerabilities in Firefox and described half of them as critical memory-corruption flaws in the browser's layout and JavaScript engines. Other patches fix flaws that would let hackers access personal data.

Hewlett-Packard Co. has shuttered its online backup service, HP Upline, after less than a year of operation. HP declined to say why it shut down the subscription-based offering.

Microsoft Corp. plans to boost research spending by $1 billion to $9 billion and increase its research staff by up to 3,000 employees, COO Kevin Turner said in a speech at the CeBIT trade show.

**CORRECTION**

The story "Enterprise Linux? Not So Fast" in the Jan. 19 issue mistakenly listed a ratio of "administrators to users" at Qualcomm Inc. The story should have said that the company's current ratio of servers to administrators is 515-to-1.

IT IN GOVERNMENT

# First Federal CIO Wants to 'Democratize' Gov't Data

THE U.S. Government's first CIO, Vivek Kundra, is looking to change the way federal agencies use IT by adopting consumer technologies and finding new ways to make government data open and accessible.

Vivek Kundra

Kundra, the District of Columbia's CTO, was appointed to the newly created post last week by President Barack Obama.

Obama had announced early in his campaign that he would name a chief technology officer, but the new CIO post was a bit of a surprise. The administration still plans to hire a CTO.

In a conference call with reporters, Kundra said he plans to create a Web site called Data.gov that would "democratize" the federal government's vast information resources, making them accessible in open formats and in feeds for developers.

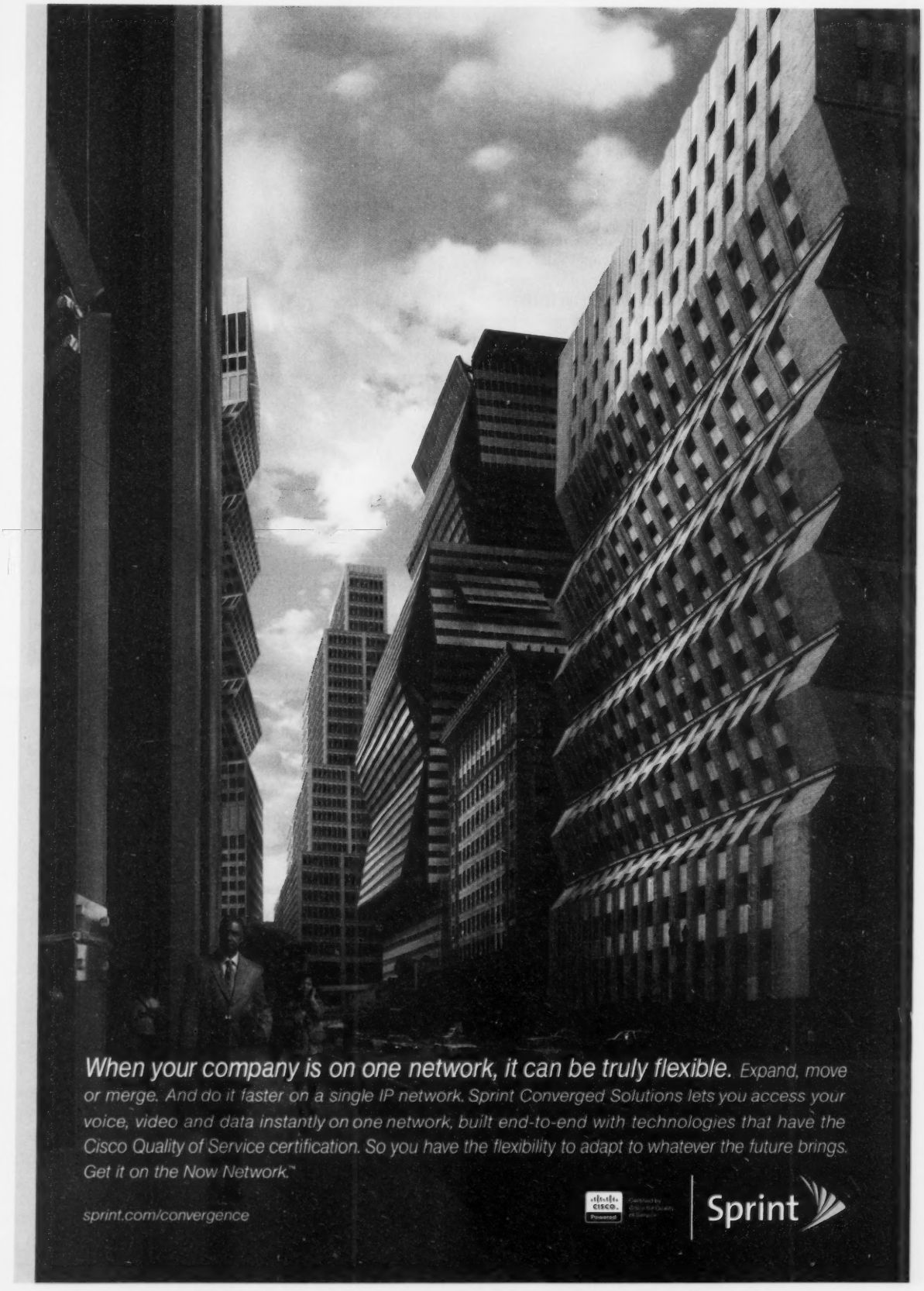
He also said he hopes to use emerging technologies like cloud computing to cut the need for expensive contractors who often end up "on the payroll indefinitely."

As the District of Columbia's CTO, Kundra built a reputation for pushing technology in new directions. For example, the district now offers some 240 online feeds that provide residents and businesses with a wide range of municipal data, such as building permits and other reports.

Technology industry leaders like Scott McNealy, chairman of Sun Microsystems Inc., have in recent weeks been urging White House officials to appoint a CIO.

As McNealy recently told *Computerworld*, IT spending by the federal government dwarfs the IT budgets of the largest companies.

– PATRICK THIBODEAU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CAREERS

# Microsoft Cut Some H-1B Workers but Will Hire More

MICROSOFT CORP. is letting H-1B workers go as part of its plan to lay off about 5,000 employees over 18 months, but the vendor will continue to hire visa holders as well, according to a letter that it sent to Sen. Charles Grassley (R-Iowa) last week.

> **"H-1B workers have long made crucial contributions to Microsoft's innovation successes. ... We are confident this will continue to be true in the future.**
> FROM THE LETTER SENT TO SEN. CHARLES GRASSLEY BY **BRAD SMITH**, MICROSOFT'S GENERAL COUNSEL

In the letter, Microsoft general counsel Brad Smith told Grassley — a vocal critic of the H-1B program — that company officials "do not expect to see a significant change in the proportion of H-1B employees in our workforce following the job reductions." Smith didn't disclose the percentage of H-1B workers at Microsoft, saying only that it is "small."

He also said that it's "too early to know the precise answers" to questions such as how many visa holders and U.S. citizens will lose their jobs in the layoffs. But he noted that most of the 1,400 employees laid off in January were U.S. citizens, in keeping with the makeup of Microsoft's workforce.

The letter was a response to one sent to Microsoft in January by Grassley, who said it was "imperative" that the company give job priority to U.S. citizens over visa holders during its layoffs.

Grassley likely targeted Microsoft, rather than the many other IT vendors that are laying off workers, because Chairman Bill Gates has called for an increase in the annual cap on H-1B visas in congressional testimony.

Microsoft also was the top U.S.-based H-1B recipient during the federal government's 2008 fiscal year, with 1,037 approved visas — putting it fifth overall.

Smith said H-1B holders "have long made crucial contributions" to Microsoft's development efforts and its "ability to help create jobs in this country." He added that about 90% of Microsoft's H-1B employees work in core technology positions or engineering jobs.

*— Patrick Thibodeau*

BETWEEN THE LINES *By John Klossner*

## BENCHMARKS LAST WEEK

Paul Twomey said he will step down as president and CEO of the Internet Corporation for Assigned Names and Numbers at year's end, when his contract expires.

The Government Accountability Office issued a report saying that the U.S. Census Bureau still has "significant" IT testing work to do before the 2010 census.

SIX YEARS AGO: The SCO Group Inc. sued IBM, claiming it had contributed SCO-owned Unix code to Linux. SCO later filed related cases against Novell Inc. and users AutoZone Inc. and DaimlerChrysler AG.

# Global Dispatches

## EC's Monitoring Of Microsoft Ends

**BRUSSELS – Five years after its landmark antitrust ruling against Microsoft Corp., the European Commission last week halted its monitoring of the software vendor's compliance with the ruling.**

**The commission said Microsoft, as required, has made its interoperability information available so rival vendors can build software that works smoothly with Windows. The EC also said rivals can force continued access to the information through European courts.**

**The commission, which filed a new browser-related antitrust case against Microsoft in January, did note that the vendor still has "an ongoing obligation to supply complete and accurate interoperability information."**

**Neil Barrett, a computer scientist at Cranfield University in Bedfordshire, England, had been monitoring Microsoft for the EC since 2005.**

**Paul Meller,**
*IDG News Service*

## AMD Completes Foundry Spin-off

**SUNNYVALE, Calif. – Advanced Micro Devices Inc. last week closed on a deal to spin off its manufacturing operations into a separate company.**

**Advanced Technology Investment Co., which is owned by the government of Abu Dhabi, paid $700 million (U.S.) for a 65.8% stake in the spin-off, tentatively called The Foundry Co. AMD maintains a 34.2% stake in the firm.**

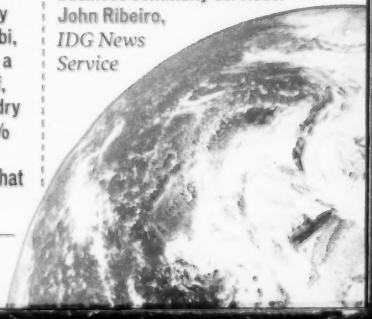
**AMD last week also said that Mubadala Development Co., another investment firm owned by the Abu Dhabi government, has paid $125 million to boost its stake in AMD to 19.9%.**

**Agam Shah,**
*IDG News Service*

BRIEFLY NOTED

**HCL Technologies Ltd. in Noida, India, last week was awarded a $76 million (U.S.), seven-year outsourcing contract by National Insurance Co. HCL will host the Kolkata, India-based insurance firm's data center and provide systems integration, management services, business process re-engineering and business continuity services.**

**John Ribeiro,**
*IDG News Service*



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HP SMART BUY[2]

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# Hard Times, Hard Decisions For IT

## With the recession squeezing IT budgets, cutbacks are the rule. But CIOs are trying to keep key tech projects on track. By Craig Stedman

AS THE ECONOMIC news continues to get bleaker, double-digit budget cuts are becoming a fact of life in many IT departments — resulting in postponed purchases, delayed projects, hiring freezes and layoffs.

The situation is undeniably grim, posing stiff leadership challenges for CIOs. But if there's a silver lining, it's that key IT initiatives in many cases are proceeding as planned, partly because of a desire among business executives to rely even more heavily on technology to help reduce corporate costs and boost revenues.

For example, Auto Warehousing Co.'s IT staff has been relatively lucky — although certainly not unscathed. AWC processes new cars for automakers, and it's feeling the pain of the drop in car sales. For IT, that means a 24% budget cut this year.

Dale Frantz, AWC's CIO and chief technical officer, has frozen salaries and new hiring, eliminated most travel and put off hardware replacements and other capital spending until 2010.

Dale Frantz

But Frantz said last week at *Computerworld*'s Premier 100 IT Leaders Conference in Orlando that he has been able to avoid job cuts thus far. And AWC is taking advantage of the business slowdown to expand its systems to some lower-volume facilities that had limited automation or none at all.

The recession "isn't good for IT per se," Frantz said prior to taking part in a panel discussion on economic issues. "But we do have an opportunity to clean up the processes at facilities where things maybe weren't as efficient as they could be."

Also helping to protect IT jobs, Frantz said, are the lower software licensing costs that are kicking in as a result of AWC's conversion from PCs to Macintosh systems, which began in 2007. "This turned out to be a great year to have that happen," he noted.

Marie Mouchet, CIO for electric utility Southern Co.'s nuclear, power generation and wholesale power units, said the Atlanta-based company has reduced overall IT spending by about 10% because of the downturn. Her team has cut merit raises, left vacancies unfilled and pushed back some projects, Mouchet said.

And, she added, when IT managers meet later this month with the chief financial officers of the utility's operating companies for a quarterly review of tech projects, the focus "is all going to be about cost."

But Mouchet hasn't had to cut her IT head count, and most major projects remain on track. That includes the rollout of a new billing system for wholesale contracts, plus a companywide deployment of Oracle Corp.'s financial applications and IBM's Maximo asset management software — a project that is expected to cost hundreds of millions of dollars.

Also, a push to cut corporate spending could accelerate Southern Co.'s adoption of new technologies, such as YouTube for video-based training and Amazon.com Inc.'s Kindle e-book reader for distributing repair manuals electronically. The recession "may be a catalyst to get a lot of these things in

ALL PREMIER 100 PHOTOS BY CRAIG HUEY

quicker," Mouchet said.

Burlington Northern Santa Fe Corp. is another company that has avoided IT layoffs and is continuing to move forward on major projects, such as a replacement of its voice-mail system and an implementation of SAP AG's financial and human resources apps.

Jo-ann Olsovsky, BNSF's CIO, said the Fort Worth, Texas-based railway is cutting both capital spending and operational expenses within IT — primarily by not filling open positions and deferring work on some projects until next year.

Jo-ann Olsovsky

But on the SAP and voice-mail projects, Olsovsky said, "we're either so far into it that you can't turn around or we just have to do it" because the systems being replaced are decades old.

Jerome Oglesby, chief technology officer at Deloitte Services LP, said the shared-services subsidiary of auditing and consulting firm Deloitte LLP has made adjustments "in a lot of different areas." He wouldn't specify which ones but said that some projects have been postponed and others canceled.

Even with the cuts, though, Deloitte Services is deploying videoconferencing technology "at a very fast pace" to help Deloitte's operating units reduce their travel costs, Oglesby said.

Jerome Oglesby

"That's one of the differences now: Our investments are more targeted," he added. "You really have to get focused on looking at the basics of the business and the business bottom line."

And in many organizations, the bottom line is none too pretty — nor is the impact it's having on IT.

For example, the number of IT jobs in the U.S. counted by the National Association of Computer Consultant Businesses declined in each of the last four months of 2008. The NACCB, which uses data from the U.S. Bureau of Labor Statistics, said its tally of IT employment fell by 63,000 jobs from August to December — a drop-off of nearly 2%.

One IT executive at the conference said his company has laid off a small number of tech workers as part of a move to cut its IT budget by about 10%. "The big driver now is cost management," said the exec, who asked not to be identified. But he added that the company hasn't canceled any IT projects outright.

To help make up for the workforce reductions, the company's IT department, which had been structured regionally, is tapping staffers from different parts of the world to work on projects. And the executive is trying to keep employees' spirits up by talking about the role IT can play in helping to pull companies out of the slump. "The message I have for my team is, we are part of the solution," he said.

Steve Finnerty

Applied Materials Inc. also has reduced its IT staff, said Steve Finnerty, vice president of IT demand management at the Santa Clara, Calif.-based maker of semiconductor production equipment and other goods. And while Applied Materials plans to complete the second phase of an SAP project this year, Finnerty said IT primarily is looking to "leverage what we already have in place."

In the wake of the cuts, Applied's IT execs are trying to boost morale by laying out a road map for when business conditions improve. "We're looking forward," Finnerty said, "not just hunkering down and being fearful."

Another IT manager who isn't hunkering down — at least not any more than usual — is Brian Lurie, vice president of IT at Stryker Orthopaedics in Mahwah, N.J. Lurie said his budget is "pretty stable."

Health care is better off than many other industries. But in keeping with parent company Stryker Corp.'s culture, the maker of surgical implants takes a conservative approach toward IT even in good times, Lurie said. And its IT staff is lean, with 125 people supporting 5,000 workers.

That's below consulting firm Gartner Inc.'s recommended staffing level. But, Lurie said, "we don't find ourselves on a hiring-and-firing roller coaster" as economic conditions change. ■

# Cloud Computing Not Ready for Critical Apps

**Educational Testing Service (ETS), developer of the SAT and other tests, runs applications on software-as-a-service platforms such as Salesforce.com. And CIO Daniel Wakeman has benchmarked internal servers against Amazon.com's Elastic Compute Cloud (EC2) service.**

**Costs for both were similar, and cloud computing services like EC2 would enable ETS, which has a highly cyclical business, to ramp its processing capacity up or down as needed.**

**But Wakeman said he's limiting the company's cloud use to pilot projects and development testing – "things that don't require full levels of security."**

**Cloud computing vendors such as Amazon and Google still aren't ready to meet corporate IT needs, according to Wakeman and other Premier 100 conference attendees. Security concerns topped the list of shortcomings, but they also cited reliability, availability and manageability issues.**

**"I probably wouldn't put anything mission-critical in the cloud now," said Manjit Singh, CIO at Chiquita Brands International Inc. Singh hopes to be able to do so eventually, but he's also worried that if he decided to switch cloud providers, his data might not be returned to him in a recognizable form – raising the specter of vendor lock-in.**

**The U.S. Defense Information Systems Agency is deploying an internal cloud service for use by the Department of Defense. In the future, DISA CIO John Garing wants to use external services as well. But if things continue as they are at cloud vendors, "we're going to be at an impasse," Garing said.**

**Martin Colburn, chief technology officer at the Financial Industry Regulatory Authority in Washington, also isn't ready to put his trust in cloud services. Cloud computing is still in the "innovation stage," he said, adding that its vendors will have to be as capable of withstanding IT audits as outsourcers are.**

**– CRAIG STEDMAN AND PATRICK THIBODEAU**

FOTOLIA

# Visa Backtracks on Breach Disclosure

## The credit card company says that a recent warning to banks referred to an earlier incident.

**By Jaikumar Vijayan**

VISA and MasterCard have probably been slow to identify the cause of a breach that they warned banks about in mid-February because they want to complete an investigation into the incident, analysts say.

However, the lack of candor sparked rampant speculation that a new, major breach had occurred, forcing Visa to later say that the warning referred to an expanded investigation of a previously known incident.

The saga began in mid-February, when Foster City, Calif.-based Visa Inc. started to quietly notify banks and credit unions that an unnamed credit card processing company "experienced a compromise of payment card account information from its systems."

At the same time, Purchase, N.Y.-based MasterCard International Inc. confirmed that it was alerting card issuers of a "potential" breach in which credit cards "were determined to be improperly accessed by an unauthorized party."

Although the companies' carefully worded statements didn't say they were referring to a new intrusion, they also failed to say that they were talking about a previously disclosed incident.

By the end of February, Visa announced that the alerts referred to an earlier breach that had turned out to be larger than first thought.

The credit card company did not identify the processing company or say why it was continuing to keep its name under wraps.

MasterCard did not respond to requests for comment on Visa's clarification.

Prior to Visa's explanation, several users said they were convinced that a major new breach had occurred.

Benson Bolling, vice president of lending at the Alabama Credit Union in Tuscaloosa, said that credit union officials believed that Visa and MasterCard were probably referring to a new breach. He also noted that Visa's initial warning about a "big breach" came shortly after Heartland Payment Systems Inc.'s Jan. 20 disclosure of a massive intrusion into its card processing systems.

Advisories issued by the Pennsylvania Credit Union Association and Tuscaloosa VA Federal Credit Union also implied that Visa and MasterCard were referring to new incidents in the mid-February notification.

Both Visa and MasterCard said early on that the latest notice did not refer to the breach at Heartland, which exposed some 100 million credit cards to hackers.

Analysts last week suggested that the credit card companies might identify the hacked company once they determine what happened.

"The forensics may not have turned up very much conclusive evidence," said Avivah Litan, an analyst at Gartner Inc. "The criminals have gotten so good at getting in and getting out, it is not easy to prove these breaches. They can be very hard to detect, and [MasterCard and Visa] honestly may not know what happened."

Jim Huguelet, an independent security consultant in Bolingbrook, Ill., said that credit card companies "don't want to overcommunicate." They are probably looking to investigate "as methodically as they can," he noted.

However, he cautioned that in such cases, people "will start to fill in the blanks" and perhaps come to the wrong conclusion.

Huguelet did say that Visa's disclosure that there was no new breach is good news.

"Three in 60 days or less would have been disheartening," he said, noting that RBS WorldPay Inc. in December said that a breach exposed personal data of about 1.5 million owners of prepaid payroll and gift cards. ■

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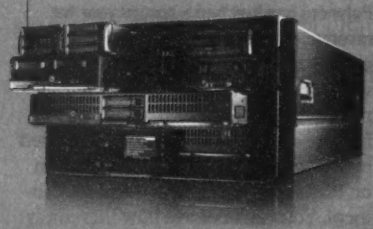

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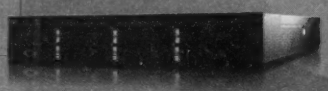

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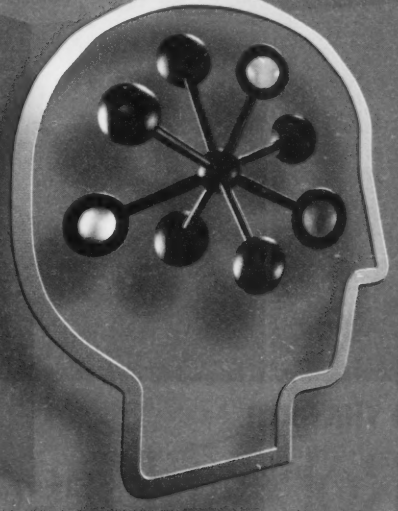

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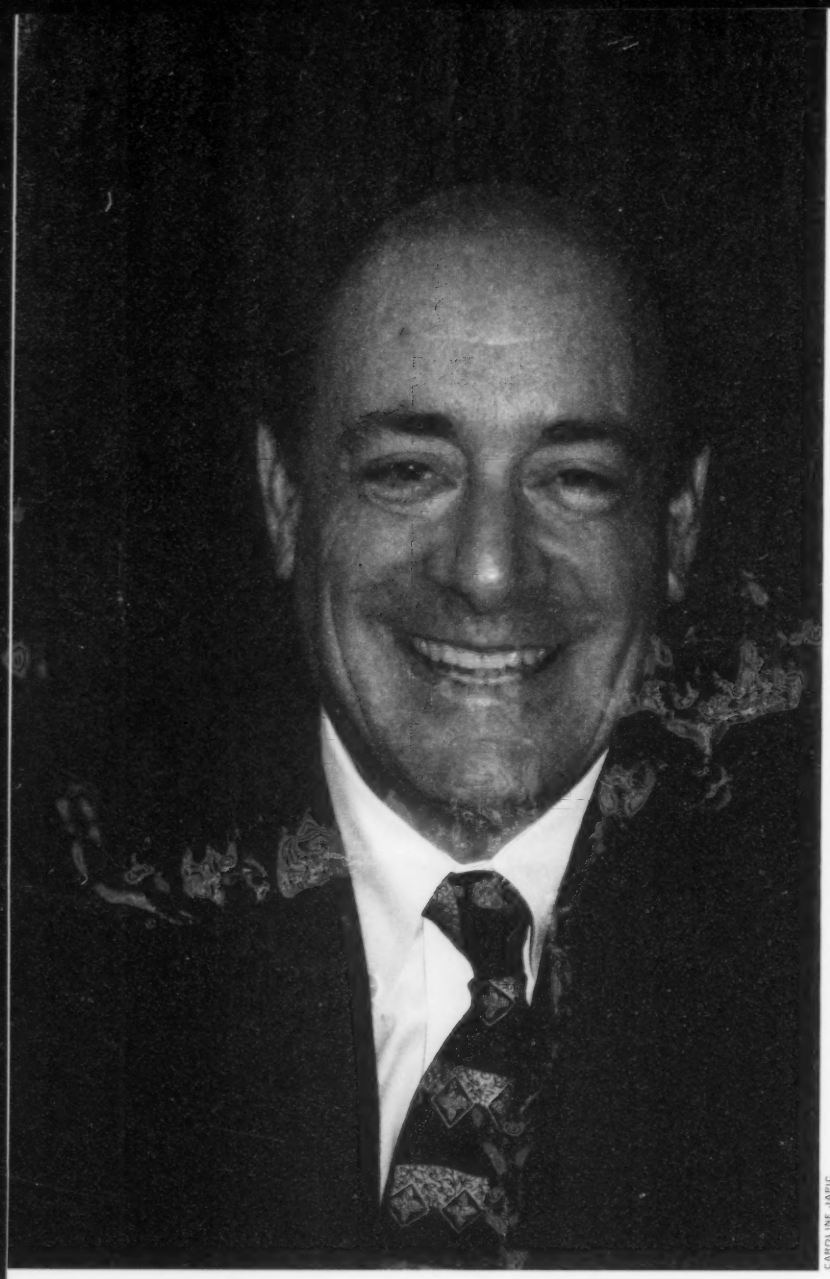

CAROLINE JAPIC

■ THE GRILL

# Robert Hagerty

**Polycom's CEO** talks about the long-awaited arrival of **'spooky-good'** videoconferencing and the next big thing: **videoconferencing on handhelds.**

## Dossier

**Name:** Robert Hagerty

**Title:** CEO

**Organization:** Polycom Inc.

**Location:** Pleasanton, Calif.

**Most interesting thing people don't know about him:** "My home is totally solar-powered."

**In high school, he was:** "Studious. Except in French."

**Favorite technology:** "Video – all flavors. Broadcast video, videoconferencing, video terminals . . . video everything. I've worked in video my whole career."

**Favorite vice:** Fast cars

**Pet peeve:** "Not meeting quota."

*Videoconferencing is available for desktops and even through specially designed rooms called telepresence systems, but on wireless handhelds? According to Robert Hagerty, who has been CEO of Polycom Inc. for 10 years, it could be widely available soon.*

**Polycom has just had a record year for revenue. Why has it taken videoconferencing so long to arrive?** We have a great value proposition with video communications, and it has taken a long time in coming. Originally, we were hobbled by a telephony infrastructure that ran on ISDN, but now it is on Internet Protocol. You can't believe how incredibly good the video quality is today. We at Polycom offer anything from desktop to PC to video that runs on phones to telepresence, all seamlessly built and high-definition. It's spooky-good video. You could take a penny and show Lincoln as he sits in the Lincoln Memorial on the back. That's how good it is. The integration with other phone and desktop communications has also leapfrogged.

**Is the value proposition about saving on business travel?** At Polycom, we have video for anybody who wants it, and that's up to 2,000 people in our workforce. The value proposition is there, our travel budgets are less, and we're not spewing carbon from planes or

*Continued on page 20*

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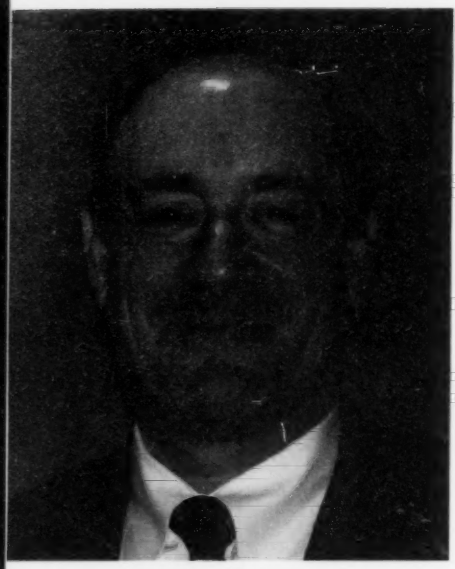


**"Voice-only will be a rarity on a wireless handheld, and videoconferencing will be the norm, sometime in the not-too-distant future.**

*Continued from page 18*

driving or in a cab. The productivity level is much higher. I can meet eight to 10 customers a day on videoconference, and I have great meetings in high definition, face to face.

**When will videoconferencing be available on wireless handhelds?** We have videoconferencing solutions working over 3G networks with Ericsson in Italy, running on the Palm. It's live TV, a live videoconferencing hook through our enterprise network and through 3G and into the backbone, which connects a person to the office so they can talk on a handheld. It looks great, but it's not high definition. You can get high-definition videoconferencing on a PC. It easily downloads. We're doing it over Wi-Fi, too, so people sitting in airports can be on videoconference calls with their laptops while they are waiting. That's live videoconferencing in high def. It's a full 30 frames a second, depending on the network. That's TV quality.

**How big will videoconferencing on handhelds be?** As videoconferencing migrates from a niche technology to the mainstream in the enterprise, you'll want videoconferencing for everyone, everywhere. It's a huge thing. It's part of a wave that's starting to crest and affecting everyone. To be provocative, I'd say voice-only will be a rarity on a wireless handheld, and videoconferencing will be the norm, sometime in the not-too-distant future.

**I can see some drawbacks to that.** The handheld does have the issue that holding it with a hand means it's not a steady camera image. The image needs to be higher than most people working on a handheld provide, since you'll be looking up somebody's nose if you aren't careful. We've developed video products for this, and the camera angle is important. The early videophones generally had the screens too low, so the camera looked up your nose. Also, the video can be a little like the video from *The Blair Witch Project*, with the moving images, with the handheld moving up to the head, to the eye.

**So you have researchers looking into this?** Yes, we have 600 people, nearly one-third of the company, in research and development, and some are busy researching and building gateways to the handheld. We never make the phones, but they will require lots of processing power for video. As the networks get more bandwidth, any of the new smartphones will work.

**There are several major companies, including Cisco, offering videoconferencing products, some of them telepresence systems. How are you distinguishing yourselves from them?** The industry is moving faster and faster, yes. We want to create a very immersive experience, the most immersive in the world with telepresence. We want you to feel like you are in the room with the other person. We're pushing for something bigger, something beyond high definition. The other consideration we address is, how much of an available pipe can your organization provide? The home office couldn't really deliver videoconferencing quality over cable or DSL, because there was not enough bandwidth. Now, with algorithms, we have the unique ability to detect lost packets and create beautiful video. We excel at that and will continue to challenge the industry on how to create ease of use and get more picture for less money.

**Your sales of traditional voice products have declined recently, so is there a shift from voice to video?** Voice over IP is more challenging, and people are delaying on those purchases. We've found that people might already have a phone and [don't need] a new one. There's nowhere near the return on investment from VoIP compared to videoconferencing.

**So, what is the videoconferencing ROI?** The ROI varies depending on the travel a company does, but from the reduced carbon footprint and dollars saved on travel, the return on investment is six months. Our team found the ROI was 265% in the first year.

**People seem to do any kind of meeting in telepresence, but are there some things you would never do, like fire somebody over telepresence?** We do performance reviews over videoconference, and people love it. That's performance reviews, not layoffs.

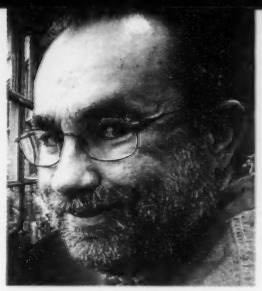
**How does 2009 look for your company and the videoconferencing industry?** We'll see double-digit growth in video revenues, but not at the level of 2008. It's a growth year, and we expect the voice division to pull through. The analysts haven't really finished their 2009 forecasts.

**How much of a threat is Cisco, given how it seems to enter markets and conquer them?** We still have the largest number of installed units in videoconferencing deployed, about 650,000 globally. The noise Cisco is making is a net gain for our industry. We welcome competition, but we think we outplay them.

— *Interview by* **Matt Hamblen**

■ OPINION

Steven J. Vaughan-Nichols



# The Google OS Is Coming by Year's End

IT'S NOT NEWS that Microsoft will get Windows 7 out as fast as possible this year. Vista has been a complete dog, so Microsoft will rush to deliver what is essentially a cleaned-up, lightweight version. What *is* news is that Google will have its own contender for desktop operating system king: Android.

Android, you ask? What would a Linux-based phone operating system be doing on the desktop? Running it, perhaps. You see, Matthäus Krzykowski and Daniel Hartmann, founders of start-up Mobilefacts, discovered late last year that Android has two product policies in its code. Product policies, they explained, are instructions in an operating system aimed at specific uses. Android's two policies are phones and MIDs (mobile Internet devices). You probably know MIDs by their more popular name: netbooks.

The light begins to dawn, doesn't it? But just because a program says it can do a job doesn't mean it can actually deliver the goods. Recall, for example, just how well Vista ran on "Vista Capable" PCs.

So, Krzykowski and Hartmann decided to see if they could get Android to work on a netbook.

It took them about four hours to compile Android for an Asus Eee PC 1000H. Then, they reported on VentureBeat.com, "we got the netbook fully up and running on it, with nearly all of the necessary hardware you'd want — including graphics, sound and wireless card for Internet." In other words, Android is already a desktop operating system.

OK, but that doesn't mean anyone is actually going to build and sell Android-powered computers, does it? Yes, that's exactly what it means.

In an interview with Bloomberg News, Samson Hu, chief of Asus' Eee PC business, said Asus has assigned engineers to develop an Android-based netbook by the end of the year — though he said it hasn't decided whether to ship such a product.

**■ What would a mobile phone operating system do on the desktop? Run it.**

But in this economy, would any company waste expensive engineering on a project that might not ship? I don't think so. Android makes sense for Asus, which has already shown a willingness to back a Linux maverick.

As for applications, the wide array of open-source software that all Linux distributions share would be available, but so would Google's Chrome Web browser and its wealth of Web-based applications. You can bet those are going to work very well with Android/Chrome.

I'm sure Asus won't be alone in adopting Android. According to Barclays Capital analyst Israel Hernandez, netbooks are the one bright spot in the PC market. Android just makes them cheaper and more profitable.

I put it to you: If you were in charge of a computer company in a lousy market, and one of your choices was to invest more in the one product line that's showing signs of life, would you do it? If you had a choice between paying a considerable chunk of cash for Windows and a lesser sum for Android, what would you do? Before answering those questions, you'd have to decide whether people would be willing to buy something other than Windows. Most haven't been, but when the alternative is from Google, which is now as well known as Microsoft, there's a real chance things could be different.

I predict that by December, we'll see not only Asus selling Android-based netbooks, but at least a half-dozen other vendors doing so as well. In bad times, businesses have to be smart, and Android on netbooks is a smart move indeed. ■

**Steven J. Vaughan-Nichols** *has been writing about technology and the business of technology since CP/M-80 was cutting-edge and 300bit/sec. was a fast Internet connection — and we liked it! He can be reached at sjvn@vna1.com.*

Alexandra Castro of Guayaquil, Ecuador, is one of the many entrepreneurs who have secured microfinancing loans with Kiva's help.

## Doing much more with much less is business as usual for Kiva, its entrepreneurs and its IT team.

By Mary K. Pratt

AARON YU wants to share his enthusiasm for Kiva, a nonprofit microfinancing organization. He sees Facebook as a prime way to do that.

But instead of posting his own notes or linking to Kiva's Web site, Yu is tinkering with Kiva's latest tech tool — its API — to find the best way to bring Kiva's message to Facebook Inc.'s social networking site.

"It opens up another channel for evangelism, or advertising, so you're able to get more people involved. It leverages the community," he says.

Kiva released its API, or application programming interface, on Feb. 3 after five months of work. Kiva's IT team says the release allows tech-savvy supporters to develop more ways to interact with the organization online that will help it expand its reach. "If we can empower other developers who are passionate about what we're doing, that would be very powerful. It would help us reach more people than what we can do with the in-house staff," says Skylar Woodward, director of

# WHAT Recession

Kiva's developer program.

Although it's not a tech company in the traditional sense, Kiva exists solely because of technology and is expanding thanks to IT innovations. Moreover, it's doing all this without pouring millions of dollars into its IT operations. From the start, innovation and efficiency have defined how Kiva would achieve its mission, making it a model for doing more with less amid today's economic challenges.

"We would not be able to be Kiva without technology," says Jeremy Frazao, director of technology. "But at the beginning, we had nothing, and we had to figure out how to make Kiva happen. That scarcity mentality has been the driving force. So by necessity, we're at the forefront. We're looking at the people doing the coolest things and asking, 'How can we do that, too?' "

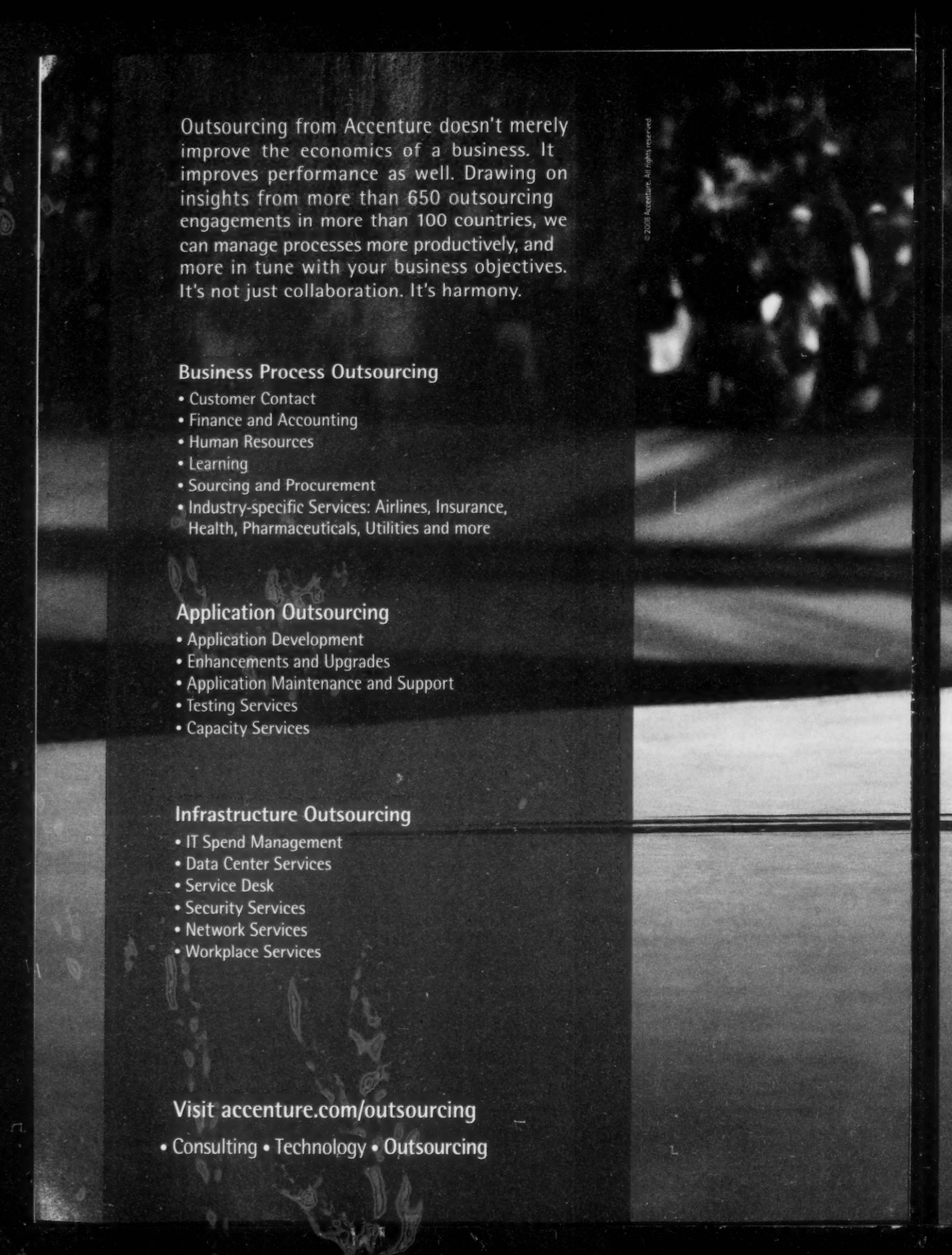
## BEGINNINGS

Here's how Kiva works: Entrepreneurs in developing countries work with microfinancing institutions (MFI) to put photos and information about their business plans and financing needs onto Kiva's Web site. Investors, most of whom come from the U.S., can review that information at Kiva.org and lend to the specific individuals they want to support. The entrepreneurs then repay the loan, and Kiva returns the money to the investors. Kiva officials say most investors choose to reinvest repayments.

Inspired by his wife's work with businesses in East Africa, Matt Flannery started Kiva in 2004.

As a child, he and his family had sponsored impoverished children through various charities, and he found that receiving information about the young-

*Continued on page 26*



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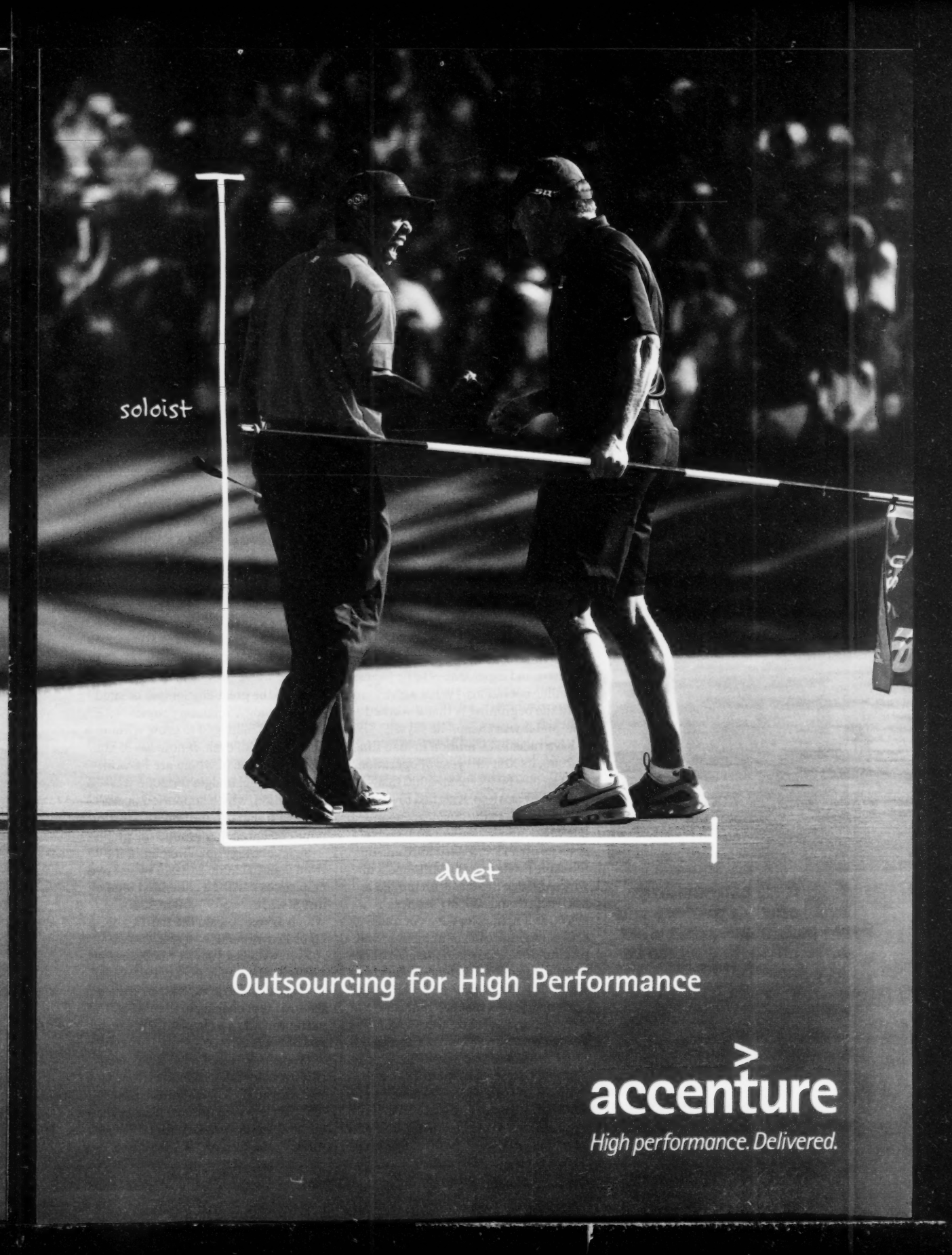


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# How Technology Built a New Industry

**BHALCHANDER VISHWANATH** plans to operate in the global financial markets, and for a mere $5,000 cash investment, he has a pretty good shot.

Vishwanath is the founder and CEO of United Prosperity, which plans to raise money from individuals to guarantee the microcredit loans banks make to impoverished entrepreneurs. Contributors will make pledges, and they'll get their money back when entrepreneurs repay their loans.

As one can imagine, there's not a lot of funding available for a start-up nonprofit that's helping to serve the poor. So Vishwanath and executives at similar organizations have to make every penny count. They do that by using technology to minimize costs while maximizing reach.

Not long ago, this business model would have been impossible. Now, though, it's clear that technology has built a new sector within the world of microfinance – and it's proving that small budgets can yield big gains with the help of high technology.

"We consider technology as an integral part of our future, for our visibility and for our donors to have a great experience," says Kristin Houk, president of NamasteDirect in San Francisco.

NamasteDirect raises money to make microcredit loans to poor women in Guatemala. The organization collects donations through various avenues, and it has found that online fundraising costs a fraction of what traditional methods cost, Houk says. Other IT initiatives have also enabled the organization to achieve high-level goals on shoestring budgets. For example, NamasteDirect used volunteers to build an e-card system that costs nothing to run and generates "a ton of traffic to our Web site," Houk says.

Researchers expect interest and investments in microfinancing to grow significantly in coming years. A December 2007 report by Deutsche Bank Research predicts that U.S. institutional and individual investments in microfinancing will jump from $2 billion in 2006 to $20 billion in 2015.

"To raise that, you need a really scalable solution," says Ashwini Narayanan, general manager of MicroPlace Inc., a for-profit enterprise owned by eBay Inc.

Narayanan says when MicroPlace started three years ago, its IT group decided to build out from scratch using Ruby on Rails and an agile development method to enable a quick launch at a lower cost than what would have been possible with other technologies and development methods.

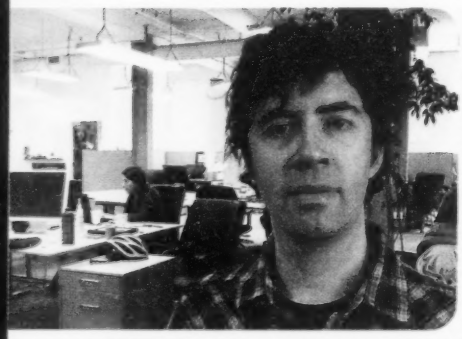
IT is also driving cost-effective innovations on the back end, says George Conard, executive director of the Seattle-based Mifos Initiative.

Part of the Grameen Foundation, a microfinancing institution headquartered in Washington, D.C., Mifos builds open-source financial software for MFIs. That helps ensure that they have the flexible, supportable platforms they need to scale up, says Conard, noting that many MFIs are still using pen and paper to manage tens of thousands of loans.

Conard sees more tech-driven innovations on the horizon. For example, he says, some MFIs want to deploy customized handhelds that use biometrics to identify borrowers who don't have any ID.

And as in any business, the IT investments of microfinance organizations show significant returns, Conard says. "When you automate, your transaction costs can go down, but more important, you gain insight into the business – what products work and what don't – so you can better target resources," he says. "And then they can look at social impact. We can see financial performance but, more crucially, how it's impacting client lives. Those are some of the transformative changes that technology can provide."

– **MARY K. PRATT**



**"If we can empower other developers who are passionate about what we're doing, that would be very powerful.**

**SKYLAR WOODWARD,**
DIRECTOR, DEVELOPER PROGRAM

*Continued from page 23*

sters "really opened my mind up to the fact that I could connect with them and converse with them and relate to them."

Flannery says he knew that traditional mailings and solicitations wouldn't work for Kiva — they would be too time-consuming, overhead-intensive and expensive — so he focused on online operations. "What we've found from the beginning is that it worked fine, and it was cheap," he says.

Kiva raised $1.9 million in loan funds in 2006, its first full year of operation, and ran on a budget of $175,000 that year.

Like any start-up, Kiva had to grow its IT operations as the business expanded. But it had unique challenges: It had to scale its own IT infrastructure and do the same for its partner MFIs, most of which operate in areas with limited infrastructure and support services.

Yet, as a nonprofit, Kiva couldn't access the kind of capital, such as venture funding, that often finances early-stage companies. Its capital came from donations and grants.

Flannery says that has required some sacrifices. "If we were a VC-backed company, we'd have an engineering team of 25 by now," he says. Without that level of funding and manpower, Kiva has to be more careful about prioritizing its IT needs, and it adds only a few new features each year as resources allow.

"I'm not complaining; we've done a lot. And we've been able to do a lot because of the great efficiencies created by technology," Flannery says.

Kiva has managed to grow without a big infusion of cash. It now has 35 staff members, nine of whom are IT workers. Its annual budget for 2008 was $4.1 million, which supported operations that sent $36 million in loans to poor entrepreneurs around the globe.

Its technology spending has gone from about $18,000 in 2006 (when two employees earned a combined total of just $14,200) to $937,000 in 2008 (of which $776,000 paid the salaries of eight IT workers).

Even with last year's IT budget of just $161,000 after salaries, Kiva managed to implement an array of tech-driven features that enable partner MFIs, entrepreneurs and investors to access and share information more quickly.

Woodward, who joined Kiva's staff in September but has been a friend to the team and a volunteer from the start, cites the organization's willingness to use existing innovations for its success.

For example, Kiva uses PayPal to

**"We would not be able to be Kiva without technology.**
**JEREMY FRAZAO,**
DIRECTOR OF TECHNOLOGY

move money around, and that has proved to be "even easier than credit cards" and cost-effective, he says. (PayPal Inc. donates its services, allowing Kiva to send 100% of the money pledged for loans to the entrepreneurs, according to Kiva officials.)

Moreover, the Internet makes it possible for Kiva to find and organize volunteer translators and editors. And social networking sites have enabled the organization to build recognition without massive investments in IT infrastructure or marketing, Woodward says.

And now, Kiva has launched its API, leveraging the talents of technologists who want to develop new ways of integrating Kiva into online venues such as blogs or Facebook pages. "We're going to encourage people to work with the API and give feedback on what works and what doesn't," Woodward says, noting that the goal is to add more features to the application to enable more customizing and more interaction with the entire Kiva enterprise.

For example, he says, a blogger who writes about Cambodia could use the API to direct readers to loan requests that Cambodian businesses have posted on Kiva.

## JOB 1: EFFICIENCY

While Woodward has looked to the outside IT community, Frazao has focused inward, finding ways for Kiva's IT unit to foster greater operational and fiscal efficiencies. "All our decisions are centered around those two things," he says.

His team spent most of 2008 reworking the partner interface — the backend operations that investors don't see and that allow the MFIs to interact with Kiva's systems.

"It's about making our site load much faster, making it interface with video and cameras, making it easier to work from a place like Cambodia or Uganda," Flannery says.

The MFIs were spending an inordinate amount of time waiting for Web sites to load, Frazao says. (Remember, they're working in developing countries where reliable, high-speed connections aren't the norm.) Some workers were spending 90 minutes to upload information for just one entrepreneur's loan request, and any telecommunications hiccup would cause the whole upload to be lost.

So Kiva's IT group rewrote the interface to speed up the process and to protect information from being lost during a disconnection, Frazao says. They cut the time it takes to upload a loan request, including an image, from a high of 90 minutes to just 15. The interface automatically saves information once workers complete a field, so they don't lose all their work if a connection is dropped.

The IT staff also reworked the way investors are repaid. Previously, investors who loaned, for example, $25 for 10 months would have to wait the entire 10 months to get repaid. Now investors are repaid incrementally as entrepreneurs pay back their loans.

It might seem unimportant, Frazao says, but when investors see that they have money lying fallow, they tend to reinvest it — often topping off the repayment amount with more money.

"The day we released that code — it's called 'liquid repayments' — in August last year, we flooded the system with $10 million, and that was the single biggest day we had," he says.

In fact, Kiva's success has occasionally gotten the best of it. There have been times when the volume of contributions temporarily outpaced the rate at which new loan requests could be posted, requiring would-be funders to wait.

In the future, Kiva will be less likely to encounter such delays, since MFIs in the field will be able to post new loans more quickly, thanks to the improvements Kiva's IT staff has been making.

Kiva's internal IT group can't take all the credit for its successes, though. The organization's leaders freely acknowledge that they use commercial technology for the sake of cost and functionality.

For example, Frazao says he switched in mid-2007 from maintaining Kiva's own server to using Amazon.com Inc.'s Simple Storage Service (S3). There's no immediate cost savings, but because S3 is infinitely scalable, Kiva will never run out of space, and it will be able to create future capacity without a big capital outlay. Moreover, by outsourcing this function, the in-house staff can focus on delivering technologies that support Kiva's core mission.

An individual donor gave Kiva 40 Flip video cameras from Pure Digital Technologies Inc., and Kiva is encouraging partners to take videos, which it's uploading on its Web site using YouTube APIs. "We want video all over the site," Flannery says. "It might help us overcome some of the language barriers. If you can't write, maybe you can make a video that connects people."

Frazao says building on YouTube LLC's interfaces required no money and just a week's worth of work from a four-person Kiva team. "We're thrilled that YouTube has done all the work for us," he explains. "To do this without YouTube would be a massive undertaking."

In fact, Frazao says, that's typical of the approach that keeps Kiva lean yet still on the leading edge of technology. "We're asking what's the fastest, easiest way to get something done. And it [often] happens to be something that a lot of people are working on," he says.

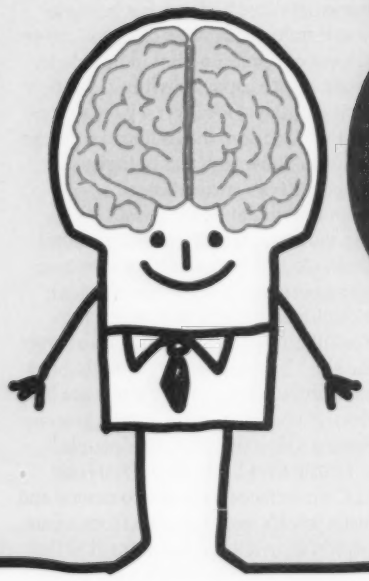
Despite Kiva's impressive growth, Flannery admits that he has accomplished only about 5% of what he'd like to do. "We're not growing like a VC-backed company that gets $10 million all upfront, so there are so many things we want to do that we haven't been able to do yet. We have to prioritize," he says.

But the good news, Flannery says, is that such organic growth creates a lean operation, because there's no room for extra expenses that don't produce results.

That's an approach pretty much everyone can appreciate today. ■

**Pratt** *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

# Server Virtualization Quiz



## How much do you really know?

By Malcolm Hamer

SERVER VIRTUALIZATION through the use of software products such as VMware has been implemented to varying degrees in corporate IT, with some successful and some not-so-successful outcomes. This year, the virtualization trend promises to continue apace.

How much do you know about the benefits, limitations and drawbacks of server virtualization? Take this quiz to see how your understanding compares with that of the experts — and gain some food for thought as you contemplate whether and where to use virtualization.

**1** **On a particular server, within each virtual machine:**
**[a]** You can run any version of Windows without regard for the version(s) running in the other virtual machines.
**[b]** The versions of Windows must be no more than one release apart.
**[c]** The versions of Windows must be exactly the same.

**2** **On a particular server:**
**[a]** You can reboot a virtual machine without it having any effect on the other virtual machines.
**[b]** If you reboot one virtual machine, all the other virtual machines reboot at the same time.
**[c]** If you need to reboot one virtual machine, you have to first reboot the physical server. The individual virtual machines then reboot automatically when the physical machine reboot is finished.

**3** **When choosing which applications or databases to place on one physical machine – using a virtual machine for each application – it is best to:**
**[a]** Choose a mixture of applications and databases with different workloads (some light, some heavy).
**[b]** Keep all the heavy-workload applications and databases together and all the light-workload applications and databases together.

**4** **Server virtualization and the use of blade servers are:**
**[a]** Technically incompatible.
**[b]** Technologies that should



ILLUSTRATIONS © FOTOLIA / NL SHOP

be combined with caution to avoid putting too many eggs in one basket.
**[c]** Technologies that should be used together whenever possible.

---

**5** **The introduction of server virtualization in a data center:**
**[a]** Will make the introduction of a storage-area network (SAN) absolutely necessary.
**[b]** Will make the introduction of a SAN desirable.
**[c]** Will not materially change storage requirements.

---

**6** **When it comes to avoiding major outages, the use of server virtualization:**
**[a]** Reduces the frequency of hardware-related service outages.
**[b]** Has no material impact.
**[c]** Requires that levels of redundancy be increased to avoid an increase in outages affecting multiple applications or services.

---

**7** **When deciding on the placement of development, testing/QA and production instances of applications and databases:**
**[a]** You can (and generally should) use virtualization to put the three instances of an application or a database on the same physical server so that the development and test environments are an accurate reflection of the eventual production environment.
**[b]** You should dedicate physical machines to hosting each type of instance so that the three types are not on the same server, to make it easier to secure the production environment.
**[c]** It really doesn't matter where you place the different types of instances.

---

**8** **In a virtualized server environment, compared with a traditional server environment:**
**[a]** It is easier to keep track of software licensing.
**[b]** Tracking software licensing is neither materially easier nor harder.
**[c]** It is significantly harder to keep track of software licensing.

**9** **The introduction of server virtualization in a data center:**
**[a]** Will make security management easier.
**[b]** Will have no material impact on the complexity of security management.
**[c]** Will make security management more difficult.

---

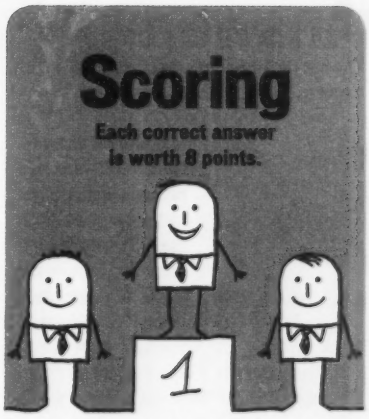
**10** **When server virtualization is introduced in a data center, the configuration management database (CMDB) used to support data center operations:**
**[a]** Will not need to be modified or replaced.
**[b]** Can be retained, although revisions will need to be made to the naming schemes used for servers.
**[c]** Will need to have its underlying database design (i.e., schema) radically redesigned. If this is not possible with your current CMDB application, new CMDB software may have to be purchased.

---

**11** **In a virtualized server environment, compared with a traditional server environment:**
**[a]** The costs of software licensing tend to decrease, because business groups can manage their licensing requirements more tightly.
**[b]** Software licensing costs tend to remain about the same.
**[c]** Software licensing costs tend to increase, because business groups request far more "machines" (knowing that virtual machines are easy and cheap to add).

---

**12** **Compared with a traditional server data center, a data center that makes extensive use of server virtualization requires:**
**[a]** Approximately 25% fewer staffers to support the servers and operating systems.
**[b]** Roughly the same number of staffers to support the servers and operating systems.
**[c]** Approximately 25% more staffers to support the servers and operating systems.




**1 - 32 POINTS:**
## Newbie
**Your knowledge of virtualization is very limited. Read though the correct answers to each question to gain a better understanding of the technology.**

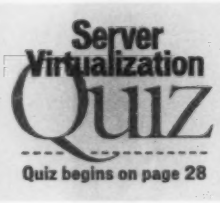
**33 - 64 POINTS:**
## Getting There
**You have a limited understanding of virtualization but are off to a good start. Read through the correct answers to see which areas you might need more help with.**

**65 - 96 POINTS:**
## Expert
**Congratulations! You are very knowledgeable about server virtualization. Read through the correct answers to bone up on any questions you missed.**

To see the answers, turn to page 30.

# Answers

**The correct answers, according to experts, are as follows:**




Quiz begins on page 28

**1. [a] Server virtualization software imposes no constraints on the versions of the Windows Server operating system (or Linux) that you place in each virtual machine**, although a completely new version of Windows may require that you check for compatibility with your server virtualization software before you install it.

**2. [a] Rebooting a virtual machine can be done without touching the physical machine or the server virtualization software.** It has no effect on the other virtual machines; they are completely isolated from one another. Note, however, that if you reboot the physical machine (that is, you reboot the server virtualization software), it will disrupt the operation of all the virtual machines.

**3. [a] In general, it is better to install a mix of heavy-workload and light-workload applications on each physical server in order to make the best use of the server.** The heavy-workload applications will benefit, in terms of performance, from being able to momentarily use a large part of the server's CPU and memory resources during traffic peaks, and the light-workload applications will effectively get a "free ride" on the server.

**4. [b] There is nothing technically wrong or difficult about placing server virtualization software on blade servers.** However, this practice should not be pursued without careful consideration of the concentration of risk that it entails. For example, if you build 10 virtual machines on each of 16 blade servers, the total number of applications running in the blade-server shelf could be 160. If anything bad happens to the shelf (fire, power loss) and adequate backup or redundancy (outside of the shelf) does not exist, you will simultaneously lose 160 applications, potentially devastating your business.

**5. [b] You should have already established a SAN in the data center or have extended SAN services to the servers that you are considering as candidates for replacement by virtual machines.** If not, it is very likely that the aggregate storage demands of the applications or databases running on each virtualized physical server will exceed what can be provided on hard drives within the server.

**6. [c] Even without the potentially worrying combination of blade servers and server virtualization, use of server virtualization on standard servers puts several eggs in one basket.** Given that hardware failure in one server will take out, say, 10 applications and/or databases, it is generally desirable to provide some level of redundancy, permitting the entire contents of the server to be quickly moved to a standby server if the main server fails.

**7. [b] It is generally better to designate physical servers as "development," "test/QA" and "production" and to place instances of applications and databases on them accordingly.** This policy is driven by security needs and, in some industries, by regulatory considerations dictating different treatments for the different environments (particularly for production).

**8. [c] In an ideal data center, it would be no harder to keep track of software licensing for virtualized servers.** Real-world experience, however, shows that it is indeed harder. In a virtualized environment, the ease with which virtual machines can be created — combined with the difficulties of finding out from business groups exactly what software is required on, or has been installed on, each virtual machine — makes tracking license requirements and license usage significantly more difficult.

**9. [c] Adequately securing access to, and information stored on, virtual machines presents new challenges, over and above those in a traditional environment.** First, access to the virtualization software must be very tightly controlled. Second, anyone with access to a virtual machine can download an application that mounts an attack on the virtual "walls" that isolate one virtual machine from the other virtual machines. Third, it is more complex to implement access restrictions at a network level for each individual virtual machine, so network-based security may end up being set at that of the least-sensitive application running on a physical machine (particularly if the network/firewall management team is busy).

**10. [c] Although numerous suppliers of software for CMDBs have started to embrace server virtualization, there are many older versions of CMDB products implemented in data centers.** These may not have the necessary underlying database designs that recognize a virtual machine as a "data entity" and can represent the relationship "Virtual Machine A is on Physical Server X." Many of the things that go with a physical server — such as the version of the operating system installed on it, and its IP address — must now be associated with a virtual machine. In addition, these things must be associated with nonvirtualized servers. These requirements mean that the database design underlying a CMDB requires a major overhaul for the product to have any hope of being useful to a data center that has started to introduce virtualization.

**11. [c] Once IT tells business groups that it can provision a new virtual machine within a few hours, human nature tends to take over.** Businesses go berserk, submitting requests for virtual machines that they might have hesitated to ask for if they had to wait for physical hardware to be budget-approved, ordered, delivered, installed and made ready for use. Some experts call the result "VM sprawl." Worse still, when a project is canceled or the development work is completed, can business groups be relied on to tell IT that the virtual machine can be deleted? Of course not.

**12. [b] The largest part of the work done in a data center tends to be driven by the number of "servers," and it makes no difference whether these are standard servers or virtual machines.** Each virtual machine requires the same level of attention as a standard server when it comes to responding to trouble tickets, managing operating system and application updates and patches, managing security issues, monitoring performance and so on. The small reduction in total work achieved by not having to install physical machines as often as you once did tends to be offset by the extra work involved in installing and configuring server virtualization systems such as VMware on each new machine. ■

**Hamer** *is a director at Acumen Solutions, a business and technology consulting firm with offices across the U.S. and Europe. Contact him at mhamer@acumensolutions.com.*

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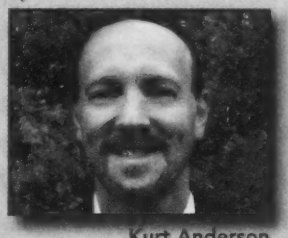

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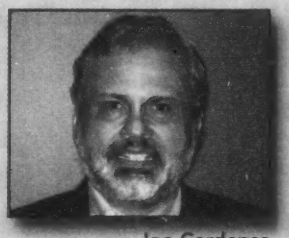

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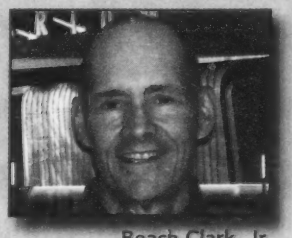

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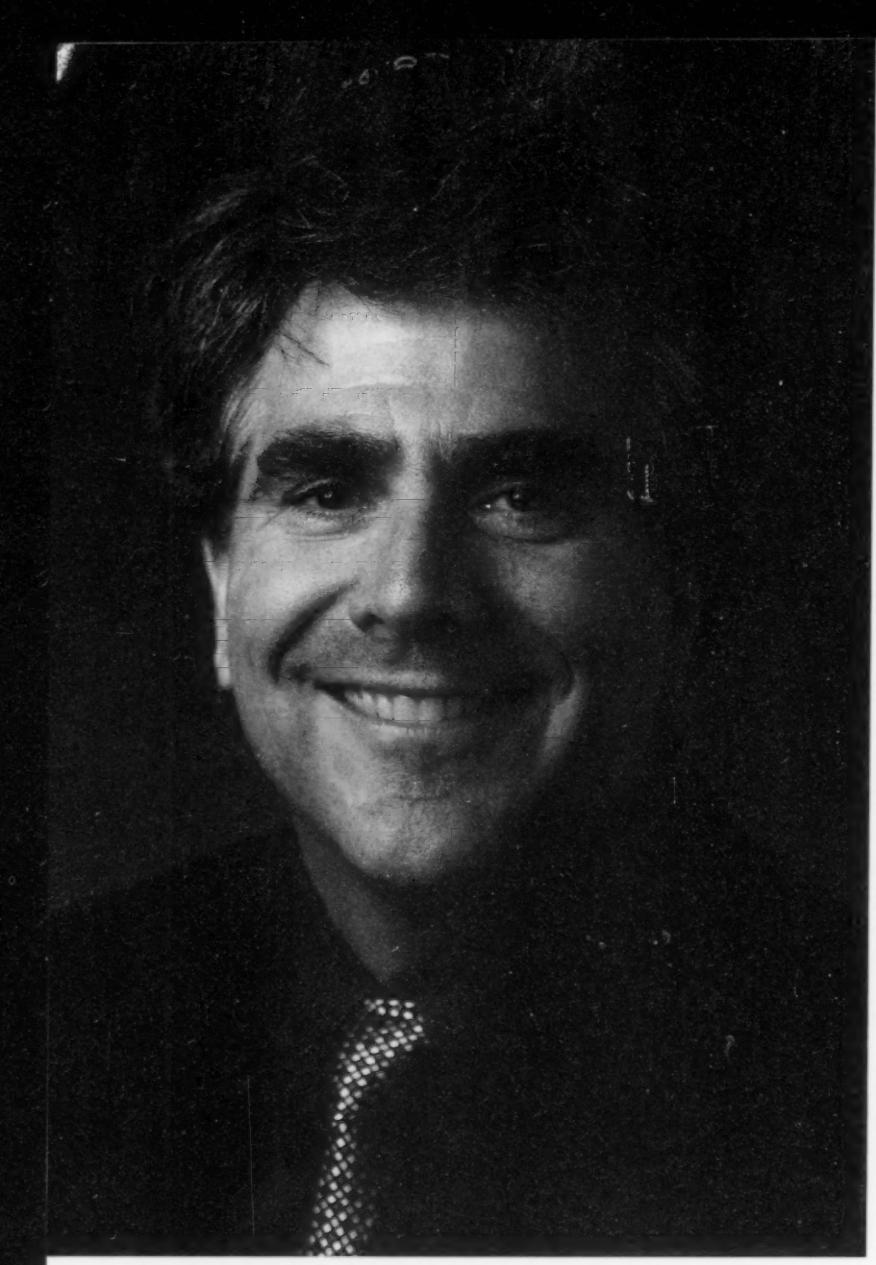

■ Q&A | M. ERIC JOHNSON

# Has Process Standardization Gone Too Far?

## 'Artistic' processes might be the answer.

*The move to standardize processes has gone overboard, say* **M. Eric Johnson** *and Joseph M. Hall in this month's* Harvard Business Review. *Some processes, they argue, are more akin to art than science and need to be treated that way. Johnson, a professor of operations management and director of the Center for Digital Strategies at Dartmouth College's Tuck School of Business, told Kathleen Melymuka why artistic processes are essential in IT and how to know when you need one.*

**Why do you say that process standardization has gone too far?** CIOs and B-school faculty have been promoting process standardization as the road to the promised land. And there's a lot that's good about that. But we began to notice that there were cases where standardization went awry because we standardized a process that required more variability and flexibility than we were allowing. By standardizing, we ended up in a worse place. That whole idea was the genesis of this article: When and how does process standardization go awry? We've all seen cases where stuff got standardized that shouldn't have and it stifled innovation.

**What is an artistic process, and when might one be needed in the IT environment?** When we say "artistic process," that language seems a little flaky, especially for CIOs. We define them by the way they operate. That is, an artistic process has to operate with lots of variability in inputs to the process, how it operates and in the outputs — and that variability is viewed positively by the customer. That's critical. If customers value variability in output, then standardizing that process will shackle competitive advantage.

When IT puts its eyes on a customer-facing system and starts thinking of standardizing that system, it should first ask the question, "Is this process one where customers value variability?"

**Can you give me an example?** Maybe the way you operate in France is different from the way you operate in Italy or the U.S. If you try to roll out a standard process, you may be destroying potential value for the firm.

**How can an IT manager identify which processes should be science and which should**

## How to Identify an Artistic Process

| Value of output variation to customers | Process environment: LOW VARIABILITY | Process environment: HIGH VARIABILITY |
|---|---|---|
| POSITIVE | Mass customization | Artistic processes |
| NEGATIVE | Mass processes | Nascent or broken processes |

ADAPTED FROM HARVARD BUSINESS REVIEW.

**be art?** It's really all about whether the customer values the variability. As a CIO, you need to think about end customers and also customers in the organization, and how both are valuing what you're doing. If the business requires more flexibility, then there is some value in variability and you have to be careful about process standardization. But standardization often makes tremendous sense in back-end processes.

**You write that new processes often start as artistic and then settle into scientific. How does a CIO manage that?** We see that when CIOs interact with innovative new businesses that spring up within an organization. A brand-new business in the context of a large enterprise can be killed off by process standardization. A CIO can look at that and know it's much more "artistic" — in quotes. We're not saying they're all poets — just that it requires more flexibility and variability in the ways it operates. The ways a new business goes to market can be changing over the first six to nine months, and if you try to standardize it, you may be shackling it. Smart companies will take steps to avoid that sometimes. They know the standards of the enterprise many times are fatal.

But there are counterexamples. When a firm acquires a business, sometimes it's best to standardize those processes and bring them into the enterprise, because though it may be a new business for the enterprise, it may be reasonably mature and ready to standardize. Cisco is famous for bringing new businesses into its IT systems very quickly and standardizing a lot of processes as a result. But it didn't do that with everything. With Linksys [home office systems], for example, Cisco left a lot alone because it's a consumer type of business that required more "art."

**How should an IT manager measure the success of an artistic process?** One of the key things we argue is that artistic processes create variability that the customer values. So if that's true, then you have to measure from a customer viewpoint and get real feedback from customers. You can convince yourself that customers value all kinds of things they really don't care about, and variability can really be kind of annoying to them. So you always have to measure from a strong customer-feedback point of view.

**How does this work in practice?** Take a CRM system. I know from lot of history that customers care about how long it takes to answer a question. I'm the CIO, and I'm doing a bunch of standardization to speed that up. I don't have to survey customers to ask if they're getting happier. I know that reducing the time will make them happier.

But if it's more of an artistic process, where they're valuing more variability in outcome, I need to be talking to and understanding the customer and getting good feedback.

**You write that artistic and scientific processes sometimes work together. Can you give an example?** On an IT help desk, there are a lot of examples. Maybe some customers with a very straightforward type of question can be triaged into a very standardized process because speed is the objective. But you may need special processes for people working with executives who are traveling internationally, and they may be on different platforms and have different problems and wouldn't be so happy with the standard help desk process.

**■ We've all seen cases where stuff got standardized that shouldn't have and it stifled innovation.**

And sometimes through triaging, you find that that executive in Asia really has a simple e-mail problem, so then he goes back into the standardized process. We call this drawing the line between art and science, and you have to know when to toss people back from one to the other.

You can see it in IT projects: There are parts where you're doing certain configurations or coding and you want a lot of standardization, but where the process architects are bringing together the pieces, there's a lot more art in that.

**How does an IT manager train people to perform an artistic process?** Artists are folks who understand not just IT but also the business, and [they] understand when you can standardize and when you need variability. Training those people means immersing them in the business so they can help the IT organization better deliver projects that match the organization's need. That kind of training requires more of an apprenticeship than some other types of training. You might stick them into a marketing organization and have them actually be a marketing person for six months or a year — or HR or the CFO's organization — and have them spend time and come back with that knowledge. That gives a deeper appreciation for when variability is needed.

**What is "art diffusion," and why is it dangerous?** We're not denying that standardization is good in many places. Diffusion is when the freedom of the artist begins to get incorporated into a lot of places in the organization where you don't want that. In the CIO's organization, there are plenty of folks you don't want [getting artistic]. If your job is coding or monitoring the firewall, you want good standards and you don't want them making it up as they go along. Often, when you go to very young start-up companies, they are very artistic, and pretty soon everybody feels like they're an artist, even if they're in accounts payable. You don't want that kind of feeling. So you always want to draw bright lines between what really is art and what is not. If I'm in the call center for e-mail problems, I need to stay on script. I'm not an artist. ■

# Location a Small Detail In Security World

## Russia? China? Vietnam? **Makes no difference** as long as you have **solid policies** in place and set the **right tone** from the start.

I'LL BE traveling again in the next few weeks, this time to Vietnam. We've been outsourcing some of our operations to low-cost nations for years: Russia for source-code development, India for help desk services and China for manufacturing, among others. Vietnam is new to the list, but as I stressed during the meetings about this engagement, there are no special security considerations. We follow the same procedures wherever our partners are located. From my perspective, the only difference is in the local cuisine.

To enhance security as my company works with third parties, I wrote a policy and had it ratified by my CIO. It sets the security requirements for all partner connections, including physical security. It also lays out audit requirements and contains some contractual verbiage specifying the partners' responsibilities. The policy is actually quite simple: Any partner connection to our company's internal network requires my approval, and my approval hinges on successful compliance with our partner connectivity policy.

A first visit to a partner is crucial, since it sets the stage for the relationship. It's my opportunity to demonstrate the importance my company places on the protection of its intellectual property and the integrity of its network. After all, visiting a country on the other side of the world isn't as easy as driving across town.

So here's my agenda for my first visit with any new partner. My company's policy states that a secure connection must be established between the partner and our company. We typically accomplish this via a small Juniper firewall on the partner's premises and a VPN tunnel between it, and a much larger firewall at our headquarters or a closer regional office. This allows us to maintain control of all the IP addresses, ports and protocols involved in data traffic between the partner and our internal network.

**■ We follow the same procedures wherever our partners are located. For me, the only difference is in the local cuisine.**

We also require that all Internet connections be routed through our gateways, not the partner's. We learned about the need to do this the hard way, after various partners' employees used their companies' Internet connections to steal our intellectual property.

We mandate that the partner's systems be logically separated from its company network and that all systems have all the latest patches and employ the leading antivirus software. What's more, no unnecessary security software (such as sniffing, scanning or password-cracking utilities) can be installed on any of the systems.

### GETTING PHYSICAL

I also have to check on physical security. I don't like mingling workspaces; the thought that a partner might have people who are working for my company sharing space with people who might be working for one of our competitors doesn't sit well with me. Therefore, our policy requires a physically separate work area for the employees who will be handling our sensitive data. Sometimes the partner has to bear the expense of building walls, installing doors and implementing a badge system, but the cost usually isn't onerous. Labor is inexpensive in all of our partner countries; that's why we're there.

Finally, I inspect physical and personnel security controls for the building. Cameras, door and window alarm systems, sign-in logs, and badge access systems are all reviewed. I also restrict the use of wireless access points for the partner network.

Once my audit is complete, I create a report and mark the calendar. Once a year, a new audit will be conducted to ensure that the partner is complying with our security policies.

Of course, on a personal level, it's always interesting to visit a new place. Bring on the pho! ■

*This week's journal is written by a real security manager,* **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

### Trouble Ticket

**AT ISSUE:** The firm is outsourcing operations to Vietnam for the first time.

**ACTION PLAN:** Policies that have worked with other partners around the world are already in place, so just follow the routine.

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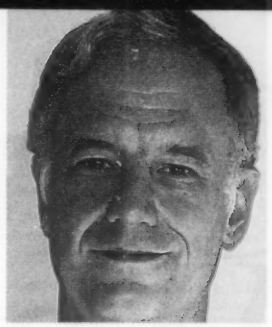
■ OPINION

Bart Perkins

# Take Advantage Of the Recession



VIRTUALLY EVERY IT organization is feeling the impact of the recession. Many have been forced to cut services, and some have cut staff as well. Most new projects have been eliminated, even those with compelling business cases. Organizations have cut all the fat (to the bone, in some cases) to meet budget constraints.

But there is a silver lining. The recession provides an opportunity to challenge the status quo, eliminate ineffective systems and services, and make changes that management has previously refused to consider.

So take advantage of the recession to get some important things done.

■ **Question practices.** During a recession, management demands maximum efficiency and is more open to new ideas. Most companies have at least a few business practices (and supporting applications) that have been unexamined for years. Often, they were instituted for a specific competitive situation or in response to an executive's request. Although the original justification may no longer be valid, the practice or application persists.

The recession is your chance to kill those dinosaurs. Take courage from IT pioneer Rear Adm. Grace Hopper, who said that the most dangerous words are "We've always done it that way." Instead of accepting the status quo, ask how things would be handled if the company were just starting out today.

■ **Develop multiple budgets.** Many corporations are developing "contingent budgets" describing multiple levels of spending cuts that will be made if revenues are down by certain amounts relative to last year. Those budgets also identify investments that can be made if revenues unexpectedly increase.

You should do the same. Determine what your IT organization will do in various scenarios before you're forced to react. Create several plans in case there are multiple rounds of budget cuts. Also identify and prioritize new projects to spend money on in case the economy improves and the business demands new capabilities.

**■ Leverage these turbulent times to challenge conventional wisdom and corporate inertia.**

■ **Measure performance.** The management dictum "If you can't measure it, you can't manage it" is good advice for IT execs. In the absence of accurate data, IT services may be seen as being too expensive, prompting discussions about outsourcing. A good system of accounting for costs and IT time is critical. Know unit costs and service levels for all IT services — including supplier performance — and compare them to industry norms.

■ **Strengthen governance.** A recession exacerbates competition for limited resources and increases pressure on IT. In difficult times, it's even more critical for executive management to establish priorities, make appropriate trade-offs and monitor program performance.

■ **Increase agility.** Criticism of long IT delivery schedules is more severe in times of rapid business change. Agile development, with deliverables every one or two months, is required during such times. Adopt rapid development techniques, and plan incremental functionality releases.

■ **Communicate candidly.** The difficult global economy makes it particularly important to communicate frequently and honestly with all stakeholders. Listen carefully to executives' concerns, and design creative solutions. Don't blindside your management team! Keep suppliers informed of plans and constraints. Honest communication builds loyalty and allows managers to make appropriate business plans. Remember to keep your staff informed of both good and bad news.

This recession may be deep and long. To survive, you must focus on fundamental IT principles, supported by flawless execution of basic IT functions. Leverage these turbulent times to challenge conventional wisdom and corporate inertia. Build consensus to redesign outdated business practices, kill marginal apps and services, and streamline archaic business processes. As several writers have stated, "A recession is a terrible thing to waste." ■

**Bart Perkins** *is managing partner at Louisville, Ky.-based Leverage Partners Inc., which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.*

# Career Watch

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## Expecting More Job Losses

The percentage of IT managers who expected to reduce staff within the next six months rose sharply in December.

| | OCTOBER 2008 | DECEMBER 2008 |
|---|---|---|
| Businesses with fewer than 100 employees | 3% | 5% |
| Midsize businesses | 4% | 10% |
| Businesses with 1,000 or more employees | 7% | 16% |

SOURCE: CDW IT MONITOR SURVEY OF 1,059 IT DECISION-MAKERS

**77%** Percentage of workers who said they have no desire to take their boss's job. What's more, 60% said they don't think they could do a better job than their boss.

SOURCE: OFFICETEAM SURVEY OF 602 U.S. WORKERS, NOVEMBER 2008

PAGE COMPILED BY JAMIE ECKLE

■ **Q&A**

## Rich Milgram

The **CEO of Beyond.com Inc.,** a network of niche career communities that includes **TechCareers.com,** assesses the **employment outlook.**

**Even as mass layoffs started to hit workers in September, you remained very optimistic about the prospects for IT employment. After a few more months, has that optimism been tempered, especially after Beyond.com reported a significant decrease in IT job postings in the fourth quarter?** While IT remained strong at the beginning of 2008, the recession finally began taking a toll on the IT job market. As the economy continued to weaken, IT spending and development slowed, along with the funding of new technology companies. We recognized the biggest impact in the fourth quarter of 2008, as IT jobs decreased by 3.53% over the previous quarter and showed the largest overall decrease of any industry this year.

However, even in this extremely tight economy, it's tough not to remain optimistic about the long-term opportunities for IT professionals. While it's true that many technology initiatives have been scaled back, technology still remains a fundamental element of the world today and continues to be a catalyst for every business and industry.

Although the current market has made it difficult for IT workers to find full-time employment, we need to remember that this job trend is not unusual in the tech world. There will always be highs and lows when it comes to hiring, and once the economy begins to stabilize, the IT industry will be among the first to grow again. IT is still among the strongest industries and will prove its long-term stability and growth as businesses realize the demand to keep up with the ever-changing world of technology in the future.

**Do you have any tips for people who have been looking for a job since the downturn began?** The weakened economy and high unemployment rate have dramatically increased the number of qualified candidates in today's job market, making it even more difficult for job seekers to get noticed by employers. As a result, IT job seekers will need to perfect their technical skills, take advantage of new learning opportunities and look for ways to demonstrate value to employers to increase their chances of finding a job. Keep in mind that finding a job is not an exact science, so it is going to take some trial and error to determine the best job-search methods.

Job seekers should use all of their available online resources, as well as old-school tactics such as networking with friends and reconnecting with former colleagues or classmates. They should leave no stone unturned. IT professionals should identify their unique attributes and selling points, and look for effective ways to promote themselves online and through their networking contacts. They should also "think local." Companies are no longer paying for relocation, so tech professionals should check out local job boards in their area, as well as industry-specific sites like TechCareers.com to ensure that they are accessing the right resources and connecting with the right employers.

One of the most important things that IT professionals should remember is to maintain a positive attitude throughout this difficult time and realize that today's challenges will lead to greater opportunities for them in the future.

– JAMIE ECKLE

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# Shark Tank

## TRUE TALES OF IT LIFE AS TOLD TO SHARKY

### That Explains It

The production system at this plant uses paper work tickets to route jobs around the facility through various automatic and manual bar code readers. "Each ticket contains two bar codes in different formats: one for production routing on the top right, and one for shipping on the top left," says a pilot fish working there. "One Monday morning, we got a panicky call – from the CEO, no less – that distribution wasn't able to ship anything. We headed out to the floor to investigate. We tried to ship a job ourselves by scanning the left bar code and didn't have any problems, so we asked for the user who actually reported the issue to find out which bar code he was scanning. He emphatically replied, 'The left one, of course.' We asked for a demonstration and could barely contain ourselves when the user calmly picked up the scanner and scanned the bar code on the right. When we pointed out he had just scanned the wrong bar code, the sheepish reply was, 'Well, it's a Monday.' "

### Good Example

Admin assistant tells this support pilot fish that she can't log onto a Web site for her boss using the printed instructions. "She placed the printed directions on the desk, opened a browser and attempted to log onto the site but again was denied access," fish reports. "I asked her what username and password she was using, and she responded, 'The one I use to log on every day.' I reminded her that the site she was trying to access was not on our network and asked if the directions provided a different username and password. Sure enough, they were right there in the step-by-step instructions. I asked if she had at least attempted that account and password. To my surprise, she had not. She said that she thought it was 'just an example.' "

### 'Out of Memory' Error

Pilot fish handles IT support for a big manufacturing plant, and he's on call 24/7. "The very first time I took a middle-of-the-night support call, I was a little groggy, being awakened by the phone at 3:30 in the morning," fish says. "But I quickly woke up and asked questions of the night operator, then talked him through restarting processes and verifying that things were working again, right down to telling him which button to click on, what to type and which passwords to put in. Typical IT support stuff, and the phone call lasted just over 20 minutes. When I turned the light off and pulled the covers back over me, my loving wife rolled toward me and said, 'You can remember all that and you can't remember to take the garbage out on Tuesdays?' I didn't sleep much the rest of that night."

■ *Remember to send Sharky your true tale of IT life at sharky@computerworld.com. You'll score a sharp Shark shirt if I use it.*


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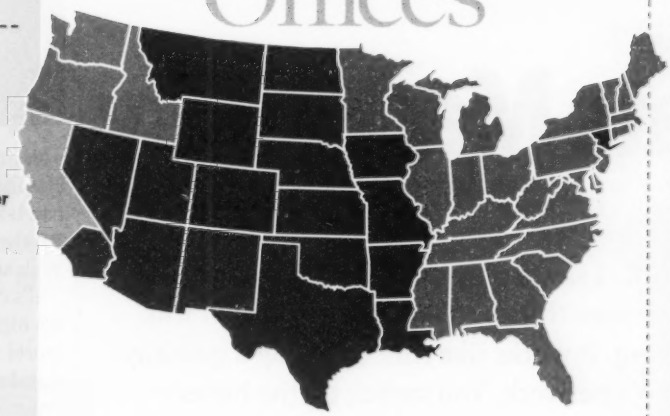

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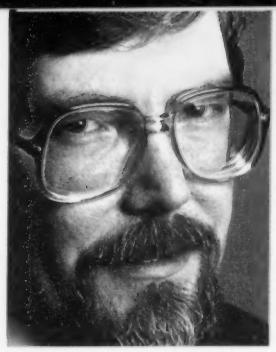
■ FRANKLY SPEAKING

Frank Hayes

# Threats Made Easy



LAST WEEK, I saw a plug-and-play Web camera. OK, you've seen things called that before, but this was different. It works like this: You plug a gateway device into a network. You switch on the battery-powered camera. You push one button. Now you have a palm-size device beaming live images onto your network.

It's 30 seconds of setup, then an endless security nightmare.

Did I mention that although the gateway device plugs into a wired network connection, the camera itself is wireless? And that it can transmit up to 100 feet inside a building to the gateway?

So at $299 (available this summer from a start-up called Avaak under the name Vue Personal Video Network), practically any disgruntled user is capable of real-time corporate espionage. He sticks a tiny camera on a conference room wall, and suddenly he can see what he's not supposed to see. Aim it at "eyes only" documents, and suddenly they're no longer so confidential.

How can something so cheap be potentially so costly to you?

And it will be, if you're blindsided by it. If you just do occasional scans for rogue devices, plenty of video could be transmitted beyond the firewall before you spot that gateway on the network.

But if you know about the Vue and how it works, it's not tough to manage. The camera transmits to the gateway, which sends the video to Avaak, which makes it available to the user through a Web page. Block the outbound traffic to Avaak's servers, and you've neutralized the threat. (Well, you'll still have a disgruntled user out there to deal with. But you'll have handled the technology issue.)

Of course, if you know about the Vue, you can also use it as a cheap, fast way to set up a temporary security camera. Or as an ad hoc videoconferencing system. Or as a tool for supporting a user when controlling his PC remotely isn't enough.

**■ That's the thing about cheap consumer tech: It can be a royal pain – or an inexpensive way to solve problems.**

That's the thing about cheap consumer tech in the midst of a recession: It can be a royal pain at a time when we don't have spare money in the budget to keep it from causing trouble. Or it can be an easy, inexpensive way to solve problems at a time when we don't have spare money in the budget to do it the way we'd like.

Here's another example: Symantec is working on a consumer version of its remote-control product, pcAnywhere. Currently dubbed Project Guru, it's designed for power users and IT people who are called on to solve the PC problems of family and friends. Typical scenario: Mom gets an e-mail from her son the techie and downloads a simple remote-control client, and then Sonny can take control of her PC through a Symantec Web site.

It's cheap, it's easy, and it's highly dangerous in a world where spammers regularly get users to download malware and upload financial information. But it could also be a great way to handle remote tech support on employees' home PCs that are used for work.

And another one: Citrix is now beta-testing GoView, which makes it easy to record a user's screen session; the video is automatically streamed to host servers at Citrix, where it can be accessed by anyone with the right URL. See the training possibilities? See the security threat?

Look, you can't stop this sort of potentially dangerous consumer tech from existing. But you can keep up on it. (I saw these three at the Demo 09 show; video of them is at the Demo.com Web site.) You can learn how to keep it in check. Maybe you can even get productive use out of it.

Just make sure you see it before your users do. ■

**Frank Hayes** *is Computerworld's senior news columnist. Contact him at frank_hayes@computerworld.com.*

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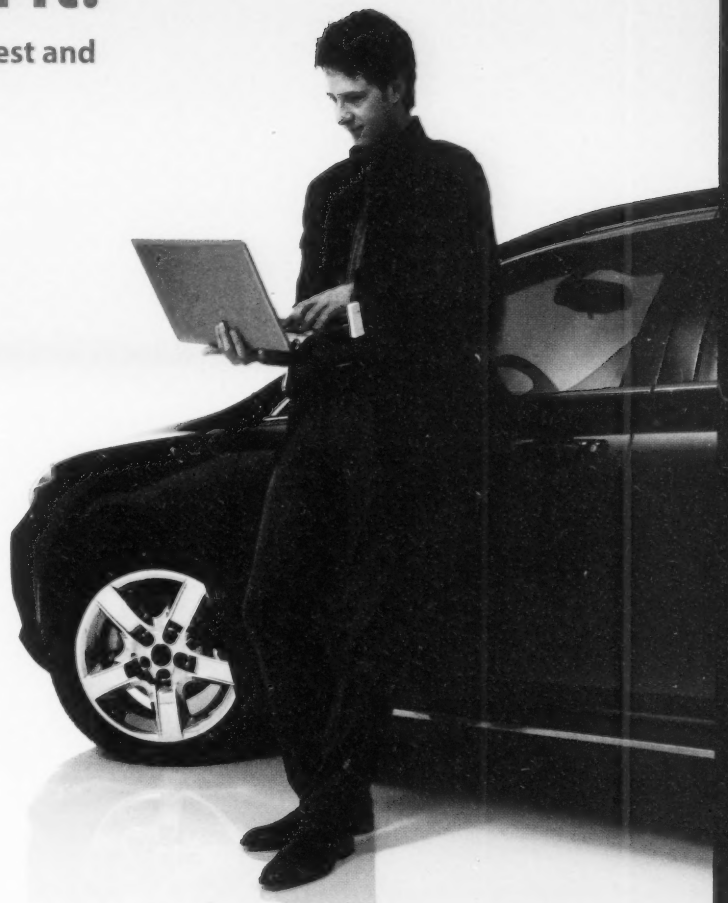

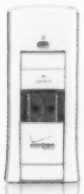

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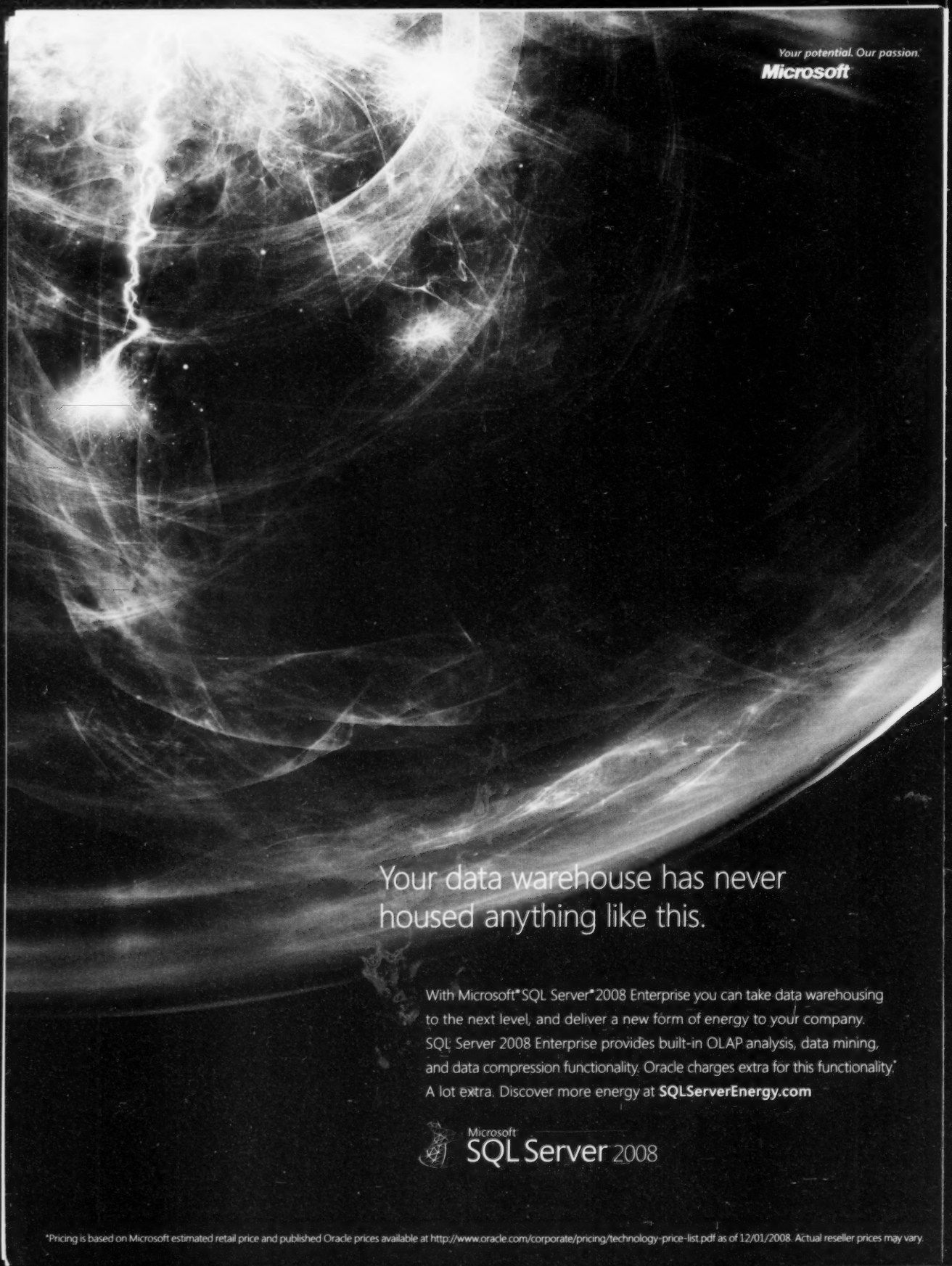
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